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ADDITIONS TO RAMULARIA AND CERCOSPORA.

BY J. B. ELLIS AND B. M. EVERHART.

RAMULARIA VERONICÆ, Fckl. Symb., p. 361.—On leaves of *Veronica peregrina*, Racine, Wis., May, 1887, Dr. J. J. Davis. Tufts amphigenous, white, abundant, covering both surfaces of the leaves, especially the tips, which soon become discolored and dead; hyphæ slender, continuous, granular, simple, subdentate above, 20—30 x 2½—3 μ, arising from a tubercular base; conidia cylindrical, granular, continuous, ends obtuse, 20—30 x 3 μ.

The above description does not agree well with that given by Fuckel, who says "conidiis cylindraceis ellipticisve, magnitudine varia, simplicibus." The specimens in de Thumen's Austrian Fungi, 892, on *Veronica hederæfolia*, have the conidia broader and shorter, 12—20 x 4 μ, but do not differ in other respects. The specimens in our copy of Mycotheca Marchica (798), on *Veronica officinalis*, show neither hyphæ nor conidia. Saccardo places this in his genus *Ovularia*, but no *elliptical* conidia were seen in the Wisconsin specimens, which do not seem to us specifically distinct. It is more probable that the form of the conidia may vary on the different species of the host, as Fuckel makes them either cylindrical or elliptical.

RAMULARIA SIDALCEÆ, E. & E.—On *Sidalceæ*. British Columbia, July, 1887, Prof. J. Macoun. Maculicolous; spots amphigenous, 2—4 millim. in diameter, dark purple, with a dirty whitish or grayish center and subindefinite margin; fertile hyphæ hypophyllous, arising in dense fascicles through the stomata of the leaf, hyaline, simple, 15—20 x 3 μ, subdenticulate and subangularly bent above, or entire; conidia subcatenulate, hyaline, oblong or oblong-cylindrical, continuous or uniseptate, 12—22 x 2½—3 μ. This seems to be quite different from *Ramularia Malvæ*, Fckl.

RAMULARIA LIRIODENDRI, E. & E.—On living leaves of *Liriodendron Tulipifera*. Faulkland, Del., August, 1887, A. Commons. Maculicolous; spots amphigenous, ochraceous, about one-half cm. in diameter, with a darker border; hyphæ hypophyllous, 15—40 x 3 μ, continuous or 1—2-septate, hyaline, tips often oblique; conidia variable, acutely elliptical, 5—6 x 3 μ or elongated, cylindrical, 12—20 x 3 μ, continuous or one-septate, hyaline, ends mostly acute. On the same spots on the upper side of the leaves was *Gloeosporium Liriodendri*, E. & E.

RAMULARIA ROSEA (Fckl.) Sacc. Syll., III, p. 199.—*Fusidium roseum*, Fckl. Symb., p. 370.—What we take to be this species has been sent from Racine, Wis., by Dr. J. J. Davis, on leaves of *Salix rostrata*. Spots irregular, 1—3 millim., dark brown, almost black above, paler beneath; hyphæ mostly hypophyllous, fasciculate, simple or occasionally branched, mostly with one or two shoulder-like notches or teeth above, nearly straight, hyaline, 25—35 x 2—2½ μ; conidia subcatenulate, fusoid, granular and nucleate, 12—22 x 2 μ. The specimens in de Thumen's Mycotheca Universalis, No. 380, seem different from this.

RAMULARIA SUBRUFA, Ell. & Holway.—On living leaves of *Smilax*, Decorah, Iowa, June, 1885, E. W. Holway, No. 376. Hypophyllous, occupying the areas formed by the veinlets of the leaf, soon subseriate, confluent, subrufous or grayish, with the margin lighter. The surface of the leaf in the affected parts is first overspread with a layer of interwoven, branching, prostrate threads, sending up from numerous points of greater condensation fascicles of fertile hyphæ, 25—35 x 3 μ, continuous, but more or less denticulate or lobed above and bearing an abundant crop of oblong-cylindrical, concatenate, 1—3-septate (mostly one-septate), 15—25 x 3½—4 μ conidia, obtusely pointed at the end and mostly straight, nearly hyaline but with a distinct yellowish tinge. The separate hyphæ are also nearly hyaline, but in the mass both these and the conidia are yellowish-brown. This is an anomalous species, both on account of the abundant prostrate hyphæ and the color of the conidia, which in all other respects are those of typical *Ramularia*. The leaf is spotted above with reddish-brown, becoming darker.

RAMULARIA CONCOMITANS, Ell. & Holway.—On leaves of *Bidens*, Decorah, Iowa, October, 1885. Spots amphigenous, yellowish-white, definite, suborbicular, 2—4 millim., mostly with a narrow, dark, slightly raised border above; hyphæ fasciculate, short, amphigenous but mostly hypophyllous; conidia cylindrical, with the ends subacute, one-septate or occasionally two-septate, 15—22 x 3—4 μ, concatenate in series of 3—5. Accompanying *Cercospora umbrata*, Ell. & Hol.

CERCOSPORA GENTIANICOLA, E. & E.—On withered leaves of *Gentiana crinita*. Faulkland, Del., October, 1887, A. Commons, No. 728. Tufts hypophyllous, minute, effused over a large part of the lower side of the leaf; hyphæ brownish, simple, short (15—20 μ) on a small tubercular base; conidia subcylindrical, slightly narrowed above, hyaline, nucleate and faintly 2—3-septate, a little curved, 40—60 x 3½ μ.

CERCOSPORA VERBASCICOLA, E. & E.—On living leaves of *Verbascum Thapsus*. Delaware, Commons, No. 669. Maculicolous; spots amphigenous, round, dirty brown, whitening out, 2—4 millim. in diameter; hyphæ slender, cylindrical, brown, septate, nearly entire above, 75—175 x 3 μ, forming scanty, scattered tufts; conidia almost filiform, hyaline, distantly septate, 100—150 x 3 μ, mostly epiphyllous.

CERCOSPORA SABBATIÆ, E. & E.—On leaves of *Sabbatia angularis*, Faulkland, Del., August, 1887. Amphigenous; tufts scattered, minute, grayish; hyphæ cæspitose, continuous, smoky-brown, 35—45 x 5 μ, on a small tubercular base; conidia obclavate, subhyaline, 3—6-septate, 65—80 x 4 μ. There are no definite spots, but the parts of the leaf affected soon become yellow.

CERCOSPORA LATENS, E. & E.—On leaves of *Psoralea argophylla*. Kansas, June, 1887, W. T. Swingle. Epiphyllous, on dark brown, subconfluent, subindefinite spots, with which the leaves are thickly mottled; hyphæ very obscure, 10—15 x 3 μ, continuous, subhyaline, arising from a tubercular base; conidia slender, obclavate, granular and nucleate, becoming multiseptate, 75—100 x 3 μ. This is quite different from *C. passalaroides*, Winter, which has longer, stouter and darker hyphæ and conidia.

CERCOSPORA CUCURBITÆ, E. & E.—On *Cucurbita perennis*. Manhattan, Kans., July, 1887, W. T. Swingle. Maculicolous; spots amphigenous, round, subochraceous, soon becoming thin, white and semitransparent, 1—4 millim. in diameter, with border slightly raised; hyphæ epiphyllous, tufted, olive brown, paler above, 70—80 x 4 μ, continuous, subgeniculate above and obtuse at the apex; conidia linear-clavate, 100—120 x 3—4 μ, hyaline, granular and nucleate at first, becoming at length septate (multiseptate [?])

CERCOSPORA SILPHII, E. & E.—On fallen leaves of *Silphium integrifolium*. Manhattan, Kans., July, 1887, W. T. Swingle. Amphigenous, but more abundant below, on subangular, 2—3 millim., dirty white spots, with a raised border, or on the lower surface of the leaf more or less effused; hyphæ cæspitose on a tubercular base, pale brown, continuous, often torulose and crooked above and subdentate, 25—35 x 4 μ; conidia slender, nearly hyaline, nucleolate, becoming 4—6-septate, 70—80 x 3 μ. The tufts of hyphæ form minute black specks, easily seen with a pocket lens.

CERCOSPORA DIFFUSA, E. & E.—On leaves of *Physalis lanceolata*. Manhattan, Kans., July, 1887, W. T. Swingle. Spots none; hyphæ amphigenous but mostly hypophyllous, simple, short, 30—40 x 4—5 μ, continuous, olivaceous, torulose and obtuse above, densely fasciculate in minute, punctiform tufts, which are scattered over the greater part of the leaf, but more densely collected in irregular groups and patches of one-half cm. or more in extent and causing the leaf at these points to turn slightly yellowish; conidia subcylindrical, slightly attenuated above, mostly 50—80 x 4 μ, but sometimes elongated to 90 and 100 μ and then

more distinctly attenuated above, granular, subolivaceous and becoming finally 4—6-septate. The microscopical characters do not differ greatly from those of *C. Physalidis*, Ell., but that species is on definite spots and the hyphæ are rather longer and paler.

CERCOSPORA FRAXINEA, E. & E.—On dried-up leaves of Ash. Manhattan, Kans., July, 1887, W. T. Swingle. Spots amphigenous, but more distinct below, indefinite or limited by the veinlets, mostly confluent, occupying considerable areas of the leaf, subolivaceous; tufts amphigenous, punctiform, densely crowded; hyphæ closely tufted, spreading, olivaceous, more or less crooked, 30—40 x 5—6 μ, at length more or less septate; conidia cylindrical or at length slightly attenuated above, 1—3-septate, subolivaceous, mostly 25—35 x 5—6 μ, but some of them reaching 50 μ long and then more attenuated above. This is allied to *C. fraxinites*, E. & E., but that is on definite spots and has the hyphæ much shorter and conidia narrower. *C. superflua*, Ell. & Holw., also resembles this somewhat, but differs in its much longer (75 μ) conidia, which are more deeply colored and have a long attenuated tip.

CERCOSPORA SEDOIDES, E. & E.—On living leaves of *Penthorum sedoides*. Manhattan, Kans., July, 1887, W. T. Swingle; Iowa, Dr. Halsted. Amphigenous, forming indefinite and inconspicuous, slightly rusty colored spots ¼—½ cm. in diameter, more distinct above and more or less confluent and always quite indistinct, giving the leaf a sickly, ferruginous tint; hyphæ arising mostly through the stomata of the leaf in scanty, spreading tufts, 15—20 x 2½—3 μ, continuous, subfuscous, subdenticulate and subundulate above or nearly entire; conidia slender, obclavate-linear, yellowish-hyaline, 2—4-septate, mostly 40—55 x 2½—3 μ wide.

CERCOSPORA SUBSANGUINEA, E. & E.—On leaves of *Smilacina Canadensis*. British Columbia, June, 1887, Prof. John Macoun. Spots amphigenous, subelliptical, light ferruginous, thin, becoming paler in the center, 2—3 millim. in diameter, subdefinite, scattered or subconfluent; tufts hypophyllous, minute, scattered, light pale red; hyphæ pale, reddish, 50—70 μ long, slender (mostly less than three μ thick) imperfectly branched above; conidia subcylindrical, 20—30 x 3—4 μ, nucleate, mostly obtuse at the ends. Resembles somewhat *C. cruenta*.

CERCOSPORA ATRA, E. & E.—On living leaves of *Diospyrus Virginiana*. Faulkland, Del., August, 1887, A. Commons. Spots amphigenous, black, subangular, 1—2 millim.; hyphæ hypophyllous, in minute tufts, arising from a tubercular base, 40—75 x 3—4 μ, continuous, dark, denticulate and subgeniculate above; conidia obclavate, curved, olivaceous, 2—3-septate, 35—55 x 3 μ. Quite distinct from *C. Diospyri*, Thum., on account of its definite black spots and shorter conidia.

CERCOSPORA SEMINALIS, E. & E.—In spikelets of *Buchloe dactyloides*. Manhattan, Kans., July, 1887, W. T. Swingle. Forming a compact, olivaceous mass enclosed by the spines of the involucre. The mycelium penetrates the seed, which it blackens and destroys, sending up between the tips of the enclosing paleæ a dense growth of fertile hyphæ, which are of a pale olivaceous color, very long, branched and obliquely truncate above, septate below and bear at their tips the subhyaline, obclavate, granular, becoming 3—5-septate, 80—110 x 6—7 μ conidia.

CERCOSPORA COFFEICOLA, B. & C.—On living coffee leaves. Guatemala, Comm. Prof. F. L. Scribner. Spots amphigenous, 2—3 millim. in diameter, with a white or at least light-colored center and reddish-brown margin; hyphæ mostly epiphyllous, tufted on the small tubercular base, 50—75 x 4 μ; with 2—3 septa, fuscous but also elongated to 100 or even 350 μ, nodulose and toothed above; conidia only sparingly observed; the few seen were hyaline, 2—4-septate, 75 x 3 μ (at the thickest end).

CERCOSPORA BRACHIATA, E. & E.—On leaves of *Amarantus retroflexus*. Faulkland, Del., August, 1887, A. Commons. Maculicolous; spots amphigenous, dark brown (darker above), becoming whitish in the center, rather indefinitely limited, 3—5 millim. in diameter; hyphæ amphigenous, tufted on a small tubercular base, pale brown, straight, cylindrical, faintly septate, spreading, 100—200 x 3½—4 μ; conidia slender, faintly multiseptate, hyaline, often reaching 200 μ long and about 3 or 3½ μ thick below. In the early stage of growth, the tufts of hyphæ appear like minute, black perithecia thickly scattered over the spots, but when the conidia appear, they assume a more effused appearance, like a dark gray, velutinous pubescence. The species is allied to *C. canescens*, E. & M.

CERCOSPORA OBESA, E. & E.—On leaves of *Cnicus*. Manhattan, Kans., July, 1887, W. T. Swingle. Maculicolous; spots irregular, gray-brown, 2—5 millim. in diameter, soon confluent, obscured below by the white, wooly tomentum; hyphæ oblong-cylindrical, simple and continuous, hyaline (or nearly so), 45 x 6—7 μ, nearly entire above, densely cæspitose in large, crowded, cinereous tufts, covering the upper side of the spots; conidia oblong-obclavate, obtuse at each end, mostly one-septate, but a few were seen with 4—5 septa, constricted at the septa, 50—60 x 5—6 μ.

CERCOSPORA HELIOTROPII, E. & E.—On leaves of *Heliotropium curassaviacum*. Albuquerque, New Mexico, S. M. Tracy, No. 384. Amphigenous; hyphæ loosely fasciculate, short (15—20 μ); tufts effused, giving the leaf at length a dirty brownish color; conidia oblong-cylindrical, 1—3-septate and sometimes constricted at the septa, 20—50 x 4—6 μ, subhyaline, with an olivaceous tinge. There are no definite spots, but the leaves at first are blotched with yellow in the affected parts, whish are mostly the upper half of the leaf, though the fungus also attacks the stems.

CERCOSPORA CEPHALANTHI, Ell. & Kell.—Fine, well-matured specimens of this species were collected at Faulkland, Del., Oct. 3, 1887, by Mr. Commons and show that the mature conidia are olivaceous-brown, 5—7-septate, 35—50 x 4 μ; the hyphæ olive-brown (almost black under the hand lens) form erect, compact tufts mostly confined to the upper side of the leaf.

CERCOSPORA DEUTZIÆ, E & E.—On leaves of *Deutzia gracilis*. Faulkland, Del., September, 1885, Commons, No. 199. Spots amphigenous, small (1—2 millim.), white above, with a thick, raised border, more

obscure beneath; hyphæ in sparsely-scattered tufts, brown, septate, more or less bent and subdenticulate above, about 100 x 3 μ; conidia hyaline, slender, multiseptate, mostly recurved above, very long (250—300 x 3 μ).

CERCOSPORA HELIANTHI, E. & E., has also been found by W. T. Swingle on *H. rigidus* (1085) and *H. doronicoides* (1073) differing from the Missouri specimens (JOURN. MYCOL., III, p. 20) in being amphigenous and having the conidia longer (100—150 μ).

CERCOSPORA MENISPERMI, Ell. & Holway.—On living leaves of *M. Canadensis*. Decorah, Iowa, June. also at Manhattan, Kans., July, 1887, by W. T. Swingle. Hypophyllous, appearing at first on small, indefinitely-limited, dark brown spots, which finally become orbicular (3—5 millim. in diameter), mostly concave below and more or less confluent, so that the leaf appears more or less blackened and dead; hyphæ nearly straight, pale brown, mostly continuous, 75—80 x 4 μ, with a few shoulder-like notches above, forming tufts arising from a subspherical, tubercular base about 35 μ in diameter; conidia obclavate, 40—60 x 5—7 μ, pale brown, nucleate, becoming 3—5-septate. Many of the conidia are much shorter, obovate or oblong-elliptical (15—25 x 5—7 μ), 1—3-septate, resembling the conidia of a *Cladosporium*.

CERCOSPORA CALLÆ, Pk. & Clinton.—This has been sent by Mr. Commons from Delaware, on *Peltandra Virginica*, agreeing well with authentic specimens on *Calla palustris*. In Journ. Mycol., I, p. 22, the hyphæ are said to be "short." In the specimens from Prof. Peck, they are 60—90 x 6 μ, and in the Delaware specimens, they are 70—110 μ long.

CERCOSPORA TABACINA, E. & E.—On *Rudbeckia triloba*. Ames, Iowa, Dr. B. D. Halsted. Mostly hypophyllous, forming tobacco-brown patches limited by the veinlets of the leaf; hyphæ tufted (tufts subeffused), brown, slender, septate, abruptly bent, often with one or more rudimentary branches above, 100—150 x 4 μ; conidia with a brownish tint, varying in size and shape from oblong, 25 x 4—5 μ and one-septate to obclavate, 50—75 x 4—5 μ, three-septate. This differs from *Cercospora Helianthi*, E. & E., in its tobacco-brown color and in being limited by the veinlets.

CERCOSPORA DALEÆ, Ell & Kellerman.—On dead stems of *Dalea laxiflora*. Kansas, July, 1887, Kellerman & Swingle (954). Hyphæ simple, brownish, straight, subdenticulate above, 25—30 x 4—5 μ, forming dense, sphæriæform tufts subseriately arranged or gregarious in elongated patches; conidia obclavate-cylindrical, brownish, 1—2-septate, 30—40 x 3—4 μ. The part of the stem occupied by the fungus becomes cinereous-brown.

CERCOSPORA ASCLEPIADORÆ, Ell. & Kellerman.—On fallen leaves of *Asclepiodora viridis*. Kansas, July, 1887, Kellerman & Swingle, 954 bis. Amphigenous; hyphæ simple, dark brown, short (15—25 μ), fasciculate in densely crowded tufts, which form nearly black patches, indefinitely limited or bounded partly by the veinlets; conidia sublanceolate, brown, multiseptate, 70—80 x 4—5 μ.

CERCOSPORA CHAMÆCRISTA, Ell & Kellerman.—On leaves and pods of *Cassia chamœcrista*. Manhattan, Kans., October, 1887, Kellerman & Swingle (1126). Hypophyllous; hyphæ loosely fasciculate, coarse, pale brown, sparingly septate, 50—70 x 5–6 μ, abruptly bent and subnodulose above; spots none, tufts effused and soon spreading over the entire lower surface of the leaf, which then assumes a brown, scorched look; conidia subcylindrical, smoky-hyaline, 1—3-septate and sometimes constricted at the septa, 35—55 x 5—7 μ.

CERCOSPORA PACHYPUS, E. & E. JOURN. MYCOL., III, p. 104.—A form of what appears to be this species has been found in Kansas (Kellerman & Swingle, No. 112) on leaves of *Helianthus lenticularis*, having the conidia 1—3-septate, the tufts of hyphæ rather larger and longer and the pallid-yellowish spots at first distinctly visible on both sides of the leaf.

The following may also be added to the list of North American species:

C. IPOMÆÆ, Winter.—Fungi Eur., 3585, on *Ipomœa pandurata*. Missouri (Galloway).

C. HELVOLA, Sacc.—On *Trifolium repens*, at Newfield, N. J.

NEW IOWA FUNGI.

BY J. B. ELLIS AND B. D. HALSTED.

CERCOSPORA LATERITIA, Ell. & Halsted.—On living leaves of *Sambucus pubens*. Ames, Iowa, September, 1887, B. D. Halsted. Hypophyllous, in indefinite, pale, brick-colored patches, which soon become confluent, covering the greater part of the lower surface of the leaf, which is variegated above with brownish spots, which become more or less confluent and darker and finally nearly black; hyphæ coarse, 50—70 x 8—10 μ, branching and septate, arising in spreading tufts through the stomata of the leaf and more or less interwoven and matted together; conidia mostly cylindrical and straight, with ends obtuse, 2—6-septate and generally constricted at the septa, reddish-brown, 50—80 x 6—8 μ, occasionally longer (100 μ or over) and then attenuated above. This is closely allied to *C. ferruginea*, Fckl., and *C. racemosa*, E. & M., but is a coarser species than either of these. though in color and general appearance it much resembles the latter.

CERCOSPORA LYCII, Ell. & Halsted.—On *Lycium vulgare*. Ames, Iowa, September, 1887, B. D. Halsted. Spots amphigenous, yellowish-brown, becoming thin and white in the center, 2—4 millim. in diameter, discoid, with a definite, raised margin; hyphæ mostly epiphyllous, yellowish-brown, paler above, septate, 80—120 x 4 μ, nearly straight, but more or less shouldered and toothed above, forming erect tufts arising from a small tubercular base; conidia slender, 80—150 x about 4 μ, hyaline, continuous or faintly 3—4 or more septate.

CERCOSPORA ANOMALA, Ell. & Halsted.—On living leaves of *Actinomeris squarrosa*. Ames, Iowa, August, 1887, B. D. Halsted. Forming indefinite patches on the under side of the leaf, olivaceous at first, becoming black. The leaf also finally shows subindefinite, blackish-brown spots above. The erect, fertile hyphæ, 30—50 x 4—5 μ, pale olivaceous, arise from prostrate, subhyaline or pale olivaceous, branching, septate threads and bear at their tips the oblong-cylindrical, smoky-hyaline. 20—40 x 4—5 μ conidia. This has the general aspect of *C. Helianthi*, E. & E., but the hyphæ and conidia are quite different and the species varies from the ordinary type of *Cercospora*, approaching *Cladosporium*.

CERCOSPORA OXYBAPHI, Ell. & Halsted.—On living leaves of *Oxybaphus nyctagineus*. Iowa City, June, 1887, A. S. Hitchcock. Hyphæ amphigenous, pale, short, 25—30 x 3 μ and crooked, sparingly septate, mostly issuing from the stomata of the leaf in very minute, black, spreading tufts, with a coarsely cellular base. These tufts or fascicles appear in indefinitely-limited groups and are so minute as to be barely visible under the lens. The conidia are filiform-obclavate, 3—4 septate, hyaline, 30—50 x 3 μ. The leaf soon becomes spotted with rusty-brown, indefinite spots, which are more conspicuous above.

CYLINDROSPORIUM IRIDIS, Ell. & Halsted.—Acervuli very minute and numerous, subcuticular, blackish, forming continuous series or strips between the parallel nerves of the leaf for several cm. in length, the exuded spores appearing like a thin white tomentum on the matrix; spores acicular, continuous, hyaline, 15—22 x 1 μ; hyphæ short (8—10 x 2 μ), obscure, mostly toothed above. On living leaves of *Iris*. Iowa City, June, 1887, A. S. Hitchcock.

VERMICULARIA SANGUINEA, Ell. & Halsted.—On leaves of *Panicum* (some introduced European species) in grass plots and lawns. Ames, Iowa, 1887, B. D. Halsted. Spots amphigenous, subelliptical, 2—3 millim. in diameter, at first smaller and purplish-red, becoming larger and black and finally white in the center, the leaf stained purplish-red around the spots; perithecia erumpent, subconcentrically arranged or irregularly scattered, or collected in a compact group in the center of the spots, depressed-globose, open above, beset with straight, black, continuous or sparingly septate, black bristles, 60—90 x 3—3½ μ; conidia broad, arcuate-fusoid, more acute and narrower above, hyaline, granular and nucleate, 20—22 x about 6 μ. In its mode of growth and in other respects apparently distinct from the other graminicolous species.

PHOMA VIRGINIANA, Ell. & Halsted.—On leaves of *Prunus Virginiana*. Ames, Iowa, September, 1887. Spots amphigenous, large (½—1 cm.), round, subindefinite, rusty brown above, darker below; perithecia hypophyllous, minute, abundant, erumpent-superficial; sporules oblong-cylindrical, 5—7 x 1½ μ.

NEW SPECIES OF FUNGI FROM VARIOUS LOCALITIES.

BY J. B. ELLIS AND B. M. EVERHART.

PHYLLOSTICTA CONCOMITANS, E. & E.—On living leaves of *Ilex decidua* with *Amerosporium ilicinum*, E. & E. Langlois, No. 654 (in part). —Spots as in the *Amerosporium;* perithecia minute, scattered, immersed, opening above, but with their bases slightly prominent below; sporules oblong, hyaline, 5—7 x 1½—2 μ.

PHYLLOSTICTA ANTENNARIÆ, E. & E.—On living leaves of *Antennaria plantaginifolia*. Faulkland, Del., June, 1887, A. Commons, No. 516. Spots epiphyllous, dark purple, with a dirty white center, subconfluent; perithecia few, epiphyllous; sporules ovate, 7 x 3 μ.

PHYLLOSTICTA HIBISCINA, E. & E.—On living leaves of *Hibiscus mutabilis*. Louisiana, November, 1886, Langlois, No. 815. Spots amphigenous, gray, irregular, large (½—1½ cm.), deciduous; perithecia rather large, black, lenticular, prominent on both sides of the leaf; sporules oblong-elliptical, hyaline, two-nucleate, 6—8 x 1½—2 μ. Differs from *P. Syriaca*, Sacc., in its narrower sporules and larger, deciduous, spots.

PHYLLOSTICTA MARGINALIS, E. & E.—On leaves of *Quercus aquatica*. Point a la Hache, La., November, 1886. Rev. A. B. Langlois, No. 820. Occupying the dead, light, rusty brown tips and margins of the leaves, the dead parts not very difinitely limited and mostly bordered by a dull, purplish discoloration; perithecia hypophyllous, scattered, about 150 μ in diameter, partly prominent, covered by the epidermis, blackish; sporules oblong-elliptical, hyaline, 6—7 x 2½—3 μ, on cylindrical basidia, about 12 x 3½ μ. The sporules sometimes have a short (1—1½ μ), persistent, filiform pedicel, by which they are attached to the basidia. The habit is similar to that of *P. terminalis* and *P. Leucothoes*, E. & M. Differs from *P. Quercus*, Sacc., and *P. quernea*, Thum., according to the specimens and the description of those species.

PHYLLOSTICTA MELIÆ, E. & E.—On dead, bleached margins of living leaves of *Melia Azedarach*. Point a la Hache, La., November, 1886, Langlois, No. 845. Perithecia amphigenous, lenticular, erumpent, 150 μ in diameter; sporules oblong-fusoid, two-nucleate, hyaline, 5—8 x 1½ μ. The whitened tips and margins of the leaves are separated from the green, living part by a narrow, dark-reddish line. *P. Azedarachis*, Thum., is said to have globose perithecia and sporules 5 x 3 μ, without nuclei.

PHYLLOSTICTA LINDERÆ, E. & E.—On living leaves of *Lindera Benzoin*. Faulkland, Del., October, 1887, A. Commons, No. 676. Spots large, round, one cm. across, dark brown, with a reddish-yellow border; perithecia hypophyllous, 65—75 μ in diameter, with a rather large, round opening above, erumpent; sporules oblong-cylindrical, 3—4 x ½ μ, hyaline. The spots have a burnt or scorched look, quite dark above, paler below.

Phyllosticta fagicola, Ell. & Morgan.—On leaves of *Fagus ferruginea*. Ohio, Morgan. Spots amphigenous, orbicular, one cm. in diameter, dull white, with a narrow (one millim.) red border; perithecia black, scattered, prominent, mostly epiphyllous; sporules narrow, elliptical, with a pale yellowish tint, 10—13 x 3—4 μ. The best-developed perithecia were on the nerves of the leaf and hypophyllous.

Phyllosticta orbicularis, E. & E.—On leaves of *Cucurbita pepo*. Faulkland, Del., September, 1887. Only a single specimen seen. Spots orbicular, large (three cm.), cinereous-brown, with a narrow, darker margin, around which the leaf is shaded yellow; perithecia mostly epiphyllous, prominent, about 100 μ in diameter, broadly pierced above; sporules rather acutely-elliptical, hyaline, 5—6 x 2—2½ μ. *P. Cucurbitacearum*, Sacc., differs in its spots and curved sporules. The specimens of this species in *Fungi Gallici*, No. 3176, have small (1—2 millim.) white spots, and the sporules are strongly curved.

(To be continued.)

NEW LITERATURE.

BY W. A. KELLERMAN.

"Some Exotic Fungi." By M. C. Cooke. *Grevillea*, December, 1887.

"Ovularia bulbigera, Sacc." By W. B. Grove, B. A. l. c.

"Revision of Polysaccum." By G. Massee. l. c.

"Australian Fungi." By M. C. Cooke. l. c.

"New British Fungi, continued." By M. C. Cooke. l. c.

"British Hyphomycetes: A Catalogue of Known Species." By M. C. Cooke. l. c.

"Beitræge zur Morphologie und Biologie der Uredineen. Inaugural Dissertation." Von Paul Dietel aus Greiz, pp. 26, plate 1.

"Curious Growth of Mushrooms." *The Garden*, Dec. 10, 1887.

"The plants belong to the rankest and coarsest kind of Horse Mushroom (*Agaricus arvensis*), but as they have originated from good spawn of the true mushroom (*Agaricus campestris*) the case affords an additional proof of the fact generally accepted by experienced botanists, that the Horse Mushroom and Pasture Mushroom are really one and the same plant." (W. G. S.)

"The Genus Geaster." Review by A. P. Morgan. *American Naturalist*, November, 1887.

Appended to his account of Dr. G. B. DeToni's "Revisio Monographica Generis Geasteris, Mich.," Prof. Morgan gives the following new species, cuts of which are kindly loaned by the botanical editor of the *American Naturalist:*

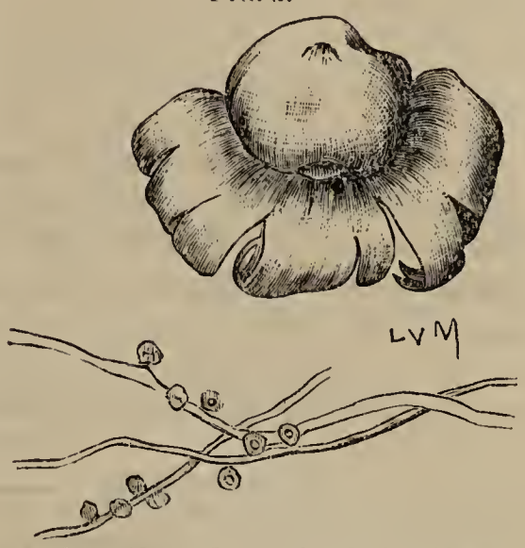
"1. Geaster campestris, Morg. (fig. 1.)

"Outer peridium thick, multifid; the segments (eight to ten) reflexed, whitish below, rufescent within; inner peridium globose, subpedicellate,

verrucose, gray or brownish, the mouth conic, sulcate-plicate, in a circular, marginate disk; spores globose, verruculose, brown, .0055—.007 millim. in diameter. Growing in clusters, at first half immersed in the soil, on the open prairie about Lincoln, Neb. Sent by Prof. Chas. E. Bessey.

FIG. 1.

FIG. 2.



"Inner peridium three eighths to three-fourths of an inch in diameter, the expanded segments one to two inches; the outer peridium is concave or vaulted underneath, with the segments often inflexed at the tip, as in *G. bryantii* and *G. limbatus;* it also has the same fibrillose stratum beneath, binding it to the soil; when this is cleared away, it leaves a smooth, whitish outer surface. In most of the dried specimens, the inner peridium is distinctly pedicellate. The peculiar feature of this species, however, is the minute, scaly or granulose warts which invest the surface of the inner peridium; there is no other species with a similar surface, unless it be the *G. granulosus*, Fuckel, which is described as "covered with a white granulose powder." Moreover, it has a filamentous peristome, and belongs among the *Fimbriati*, while our species belongs to the *Striati* of Dr. De Toni's arrangement.

"2. GEASTER DELICATUS, Morg. (fig. 2.)

"Outer peridium thin, multifid; the segments (six to ten) unequal, revolute, whitish below, alutaceous within; inner peridium depressed-globose. sessile, puberulent, pallid, the mouth lacerate; spores globose, verruculose, fuscous, .005—.006 millim. in diameter. Growing on the prairie around Lincoln, Neb. Sent by Prof. Charles E. Bessey.

"Inner peridium one-fourth to one-half of an inch in diameter, the expanded segments an inch or more. The segments, when fresh or wet, are strongly revolute, and become inflexed when dry, after the manner of *G. hygrometricus;* they are nearly papyraceous, the inner, fleshy stratum being remarkably thin; the color outside is whitish or glaucous and the external surface is very smooth. There is no determinate circular areola to the inner peridium and the mouth is stellately lacerate or sometimes a mere slit or puncture. The nearest relative would appear to be *G. bovista*, Klotsch, from which it differs in several particulars; it belongs to the same section, the *Exarcolati*, of Dr. De Toni's monograph."

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N. B.—No. 2 will be published with No. 3 in March.

JOURNAL OF MYCOLOGY.

Vol. IV. MANHATTAN, KAN., Feb., Mar., 1888. Nos. 2, 3.

REVISION OF THE GENUS DOASSANSIA, CORNU.

BY DR. J. B. DE TONI, N. S. D., PADUA, ITALY.

In the year 1883, the clever French mycologist, M. Cornu (*), studying some fungi belonging to *Ustilagineæ*, proposed a new genus to be named *Doassansia*, in honor of Dr. Doassans, a diligent explorer of the mycologic flora of the Pyrenees. He proposed the following generic characters:

"Fungi in planta viva parasitici; sporæ coacervatæ, incarceratæ; cortex sori cellulis simplicibus, arcte adnatis; germinatio sporarum ut in Entylomatibus coronam sporidiolorum effingit."

Several mycologists afterwards contributed to increase the species of this genus. Among them I remember especially C. Fisch, G. Winter, J. Schrœter and W. G. Farlow, so that the genus *Doassansia*, Cornu, contains about ten entities, which are, however, as Mr. Schrœter (†) justly observes, very much like each other and can scarcely be distinguished by the character of the matrix.

I have been convinced by a comparative study that the matrix must exercise a notable influence and may probably give an explanation of the involucrum (cortex sori of Cornu). The matrix of *Doassansia* is found in every species described on plants either strictly aquatic or living in very damp places (*Alisma*, *Sagittaria*, *Potamogeton*, *Limosella*, *Butomus*, *Limnanthemum*, *Hottonia*, *Comarus*, *Lythrum hyssopifolium*, *Epilobium alpinum*); we might accordingly suppose that the "cortex sori" performed the office of protecting the organs of the fungus from excessive moisture.

* 1. M. Cornu.—Sur quelques Ustilaginees nouvelles ou peu connues. Annal. Sci. Nat. Botanique, 1883, p. 285.

† 2. J. Shrœter.—Kryptogamen Flora von Schlesien von Prof. Dr. F. Cohn, III, Pilze, p. 286. Breslau, 1887.

This tegument of strictly united cells cannot be found in true Entyloma, which otherwise perfectly correspond with *Doassansia*.

In both genera the spores produce on germinating a promycelium provided only with acrogenous sporidiola disposed like a crown and united usually in twos. *Entyloma* and *Doassansia* following Schrœter's plan of classification in his work now cited belong to Cohors *Ustilagineæ*, Family *Tilletiaceæ* and Subfamily *Tilletieæ*.

In the genus *Doassansia* the spores are either oval-globose or more or less angular, pale-colored, without (following Fisch [‡]) a true endospore and germinate in water very easily. Our genus differs from the nearly allied genus *Tuberçinia*, Fr., in the tegument of the sori.

The relation I have observed between the matrix and a tegument protecting the mass of spores caused me to suspect that Rostrup's *Entyloma Hottoniæ* and Berkeley's *Protomyces Comari* must be referred to *Doassansia*, and a microscopical examination confirmed fully this suspicion. By this criterion, even Johanson's *Entyloma Catabrosæ* (‖), a species living on *Catabrosa aquatica*, should belong to the genus proposed by Cornu; but I dare not affirm it, because I have seen no specimen of it.

The studies on the fungi living on aquatic plants have been somewhat neglected, so that I can make but few observations on their geographical distribution. Some species like *Doassansia Limosellæ*, Schrœt, *D. Neisslii*, De Ton., are thus far limited to Germany; *D. Cormari*, De Ton. et Massee to Great Britain; *D. Hottoniæ*, De Ton., to Denmark; *D. Cormari* (Berk) De Ton. et Massee to Great Britain; *D. Epilobi*, Farl., *D. decipiens*, Wint., *D. occulta*, Cornu, to North America ; *D. Martianoffiana*, Schrœ., to Siberia and Germany; *D. Alisimatis*, Cornu, and *D. Sagittaria*, Fisch., are spread more widely; the former has been found in Italy, France, Germany, Finland, Sweden, Siberia and North America; the latter in Italy, France, Belgium, Germany, England and North and South America.

I close these short observations with many thanks to the M. Prof. P. A. Saccardo who, with his usual kindness, gave me free access to his valuable mycologic herbarium and otherwise aided me in the preparation of this paper.

1. DOASSANSIA ALISMATIS (Nees) Cornu. Sur quelques Ustilaginees nouvelles ou peu connues, p. 285, t. XVI, f. 1-4 (1883); Schrœter Pilzfl. Schles, p. 286; *Sclerotium Alismatis*, Nees., in Fr. Syst. Mycol., Vol. II, p. 257 (1822); *Perisporium Alismatis*, Fries , Syst. Mycol., Vol. III, p. 252; *Dothidea Alismatis*, Lasch., in Rabenhorst Herb. Mycol., I edit., n. 553 et II edit., n. 162; *Uredo Alismacearum*, Crouan, Fl. Finist, p. 8 (?); *Entyloma Alismacearum*, Sacc., in Michelia II, p. 44, n. 434; Mori Funghi di Modena, n. 14; *Protomyces macularis*, Fuckel., in Thum. Myc. Univ., n. 1417, non

‡ 3. C. Fisch.—Zur Entwickelungsgeschichte von *Doassansia Sagittariæ*. Berichte der deutsch. botan. Gesellschaft, II. Berlin, 1884.

‖ 4. Johanson.—Svampar fran Island. Oefversigt af Kongl. Vetenskaps. Akademisy Fœrhandlingar n. g. Stockholm, 1884.

Sacc., in Michelia, I, p. 13 (*Physoderma maculare*, Wallroth). Exsicc.:— Rabenhorst. Herb. Mycol., I edit., n. 553, II edit., n. 162; Ellis North American Fungi, n. 1485; Roumeguere Fungi Gallici Exsiccati, n. 1358; Thumen, Mycoth. Univ., n. 1417.

"Soris amphigenis, pustuliformibus, brunneis, usque ad 300 μ in diameter metientibus, utrinque prominulis, rotundatis vel ellipsoideis, rarius irregularibus, numerosis, in maculis ut plurimum determinatis orbicularibus, 4—10 mm. longis, raro subconfluentibus circinatim dispositis; sporis sphæroideis vel ovoideis obtuseque angulatis, 10-14 (rarius 18) x 8–11 μ, episporio tenui, levi, dilute brunneo donatis, plasmate pallido subhyalino fœtis; tegumento communi bene evoluto, obscure brunneo; sporidiolis longe cylindraceis, numerosis ad apicem promycelii evolutis."

Habitat in foliis *Alismatis Plantaginis* in Italia, Gallia, Germania, Suecia, Finlandia nec non Siberia occidentali, et America boreali, socio sæpe *Cylindrosporio Alismacearum*, Sacc., quocum metagenetice connexa videtur, Cfr. Saccardo Syll. Fungorum, Vol. III (Sphæropsideæ et Melanconieæ), p. 740, n. 3865.

The identity of *Uredo Alismacearum*, Crouan, with this species remains a little doubtful, because the description given in Florule de Finistere is very imperfect. "Pustules peu proeminentes, sphæriques ou ovoides, reunies en petits groupes; spores sphæriques, jaunes; Sur la face inferieure de l'Alisma Plantago." This description could be applied also to *Physoderma maculare*, Wallr., and only a comparison with authentic specimens could decide the question. The same doubt can be raised about species of Nees. On the contrary, *Entyloma Alismacearum*, Sacc., of which I have studied several French specimens collected by the late Ab. Letendre and Italian ones collected by Prof. A. Mori near Modena, corresponds perfectly to *Doassansia Alismatis*, Cornu.

2. DOASSANSIA SAGITTARIÆ (West.) Fisch., in Berichte der deutsch, botan. Gesellsch., II, p. 405 (1884); Winter et Demetrio, Beitr. Pilzfl. Missouri ser I, n. 1; Briard Champ. nouv. Aube, n. 29; Schroeter Pilzfl. Schles, p. 286; *Uredo Sagittariæ*, Westend. Herb. crypt. Belg., n. 1177; *Physoderma Sagittariæ*, Fuckel Fungi Rhenani, n. 1549; *Protomyces Sagittariæ*, Fuckel., Symbolæ Mycologicæ, p. 75; *Protomyces Bizzozerianus*, Sacc., in Michelia, I, p. 97; Fungi Italici autogr. delineati, f. 103; *Entyloma Bizzozerianum*, Sacc., in Michelia, II, p. 135; Spegazz. Fungi Argentini, pugillus quartus, p. 21, n. 55. Exsicc :— Westendorp, Herb crypt. belg., n. 1177; Fuckel, Fungi Rhenani, n. 1549; Sacc., Mycotheca Veneta, n. 889; Gaudoger, Fl. Gallica Exsicc, n. 744; Vize, Micro-Fungi Britannici, n. 50.

"Soris hypophyllis, pustuliformibus, flavescenti-brunneis, usque ad 100 μ in diameter metientibus, plerumque rotundatis, numerosis, subinde confluentibus, in maculis orbicularibus, 5—10 mm. latis, amphigenis, pallide flavescentibus, centro obscurioribus dispositis; sporis irregulariter globosis, subangulato-compressis, plerumque, 9—14 x 9—12 μ, episporio crassiusculo, levi, flavescenti vel hyalinulo donatis, plasmate, subtiliter granuloso foetis, rarius biguttatis; tegumento communi bene evoluto, brunneo; sporidiolis ut in specie praecedente."

Habitat in foliis *Sagittaria sagittifoliæ, variabilis et monteridensis* in Italia, Gallia, Germania, Britannia, Belgio nec non Missouri Americæ borealis et Republica Argentina, Americæ, Australis.

I have been able to ascertain the absolute identity of *Physoderma Sagittariæ*, Fuck., *Uredo Sagittariæ*, West., and *Entyloma Bizzozerianum*, Sacc., by the examination of authentic specimens. I have received a specimen of the first species taken from the classic Fuckelian collection Fungi Rhenani by the M. Prof. I. Briosi, of Pavia (to whom I am very much obliged); the typical specimens of the second and third species are contained in Prof. Saccardo's herbarium.

By a microscopic examination, I am convinced that the word "magnis," applied by Fuckel to the spores of *Physoderma Sagittariæ* must be referred to the sori, because the diameter of the spores is 10—12 μ, which agrees with the characters of Westendorp and Saccardo's species. The synonymy of *Doassansia Sagittariæ* is therefore well defined.

3. Doassansia Martianioffiana (Thum.) Schrœt. Pilzfl. Schles., p. 287 (1887); *Protomyces Martianoffianus*, Thumen.; Pilzfl. Sibiriens, II, p. 123 (1878); Berlese et De Toni Syll. Phycomyc. in Sacc. Syll. Fung. Omnium, Vol. VII, p. 320, n. 1125.

"Soris hypophyllis, subpustuliformibus, ochraceo-fuscidulis, ut plurimum, 60—80 μ in diameter metientibus, numerosis, dense gregarius, in maculis usque ad 5 mm. latis, orbicularibus, indeterminatis, haud marginatis, flavescentibus dispositis maculasque contrapositas (epiphyllas) aurantiaco-flavidulas v. fuscidulas haud limitatas efficientibus; sporis irregulariter globosis, vel elliptico-globosis, plerumque 9—11, rarius 16 μ in diameter, episporio tenui, levi, dilute brunneolo, plasmate subtiliter granuloso, pallido fœtis; tegumento communi arcte adnato, pallide colorato."

Habitat in foliis vivis fructibusque *Potamogetonis natantis et graminei* in Germania et pr. Minussinsk Sibiriæ occidentalis.

The following species (*D. occulta*, Cornu), which grows also on *Potamogeton*, is but little different.

4. Doassansia occulta (Hoffm.) Cornu, in Farlow's Notes on a Fungus parasitic on species of *Potamogeton*, p. 2; *Sclerotium occultum*, Hoffman; Icon. Analyt. Fungor, p. 69, t. XVI, f. 3 (1862); *Doassansia* (?) *Farlowii*, Cornu, Sur quelques Ustilaginees nouvelles ou peu connues, p. 287 (1883).

"Soris ovatis vel globosis, ovariicolis, brunneis, compressis, numerosis, sparsis, 180—200 μ longis, 140—180 μ latis; sporis (immaturis [?]) globosis, 20 μ circ. diameter, pallide coloratis, tegumento communi valde evoluto, obscure colorato."

Habitat in ovariis fructibusque maturis, *Potamogetonis natantis et lucentis* in Germania (Irmisch et Hoffmann) nec non *Potamogetonis Vaseyi, pusilli, perfoliati*, var. *lanceolati et natantis*, Ottawa Americæ borealis (J. Fletcher). The fruits are white-greenish, red-brown spotted, swelled by the fungus.

5. DOASSANSIA NIESSLII, De Ton. *Protomyces punctiformis*, Niessl. Beitr. zur Kenntn. der Pilze, p 16 (1872); Berlese et De Toni; Syll. Phycomyc. in Sacc. Syll. Fung. omnium, Vol. VII, p. 321, n. 1131; *Doassansia punctiformis* (Niessl), Schrœt. Pilzfl. Schles., p. 287 (1887), non Winter (1886).

"Soris minutissimis, punctiformibus, 50—60 μ in diameter metientibus, vix convexis, numerosis, gregariis, subepidermide (macula subnulla) nidulantibus, griseo brunneis vel melleis ; sporis subglobosis vel irregulariter angulatis, 9—11 μ in diameter, episporio levi, dilute brunneo donatis; tegumento communi parum distincto."

Habitat in foliis *Butomi umbellati*, pr. Brunn Moraviæ (Niessl) et Breslau Silesiæ (Schrœter).

I have thought necessary and convenient to change the name of this *Doassansia*, dedicating it to Mr. Niessl, the first one who illustrated it, because the late Dr. Winter, previous to the reduction of *Protomyces punctiformis*, Niessl, to *Doassansia punctiformis*, Schrœt , gave the latter specific name to a different *Doassansia* living on *Lythrum hyssopifolium*.

6. DOASSANSIA PUNCTIFORMIS, Winter. Fungi Australienses in Revue Mycologique. 1886, p. 207, non Schrœter (1887).

"Soris amphigenis, globosis, punctiformibus, minutissimus, sparsis vel subgregariis, utrinque prominulis, fuscidulis; sporis numerosis, conglobatis, rotundato-polygonis, isodiametricis, 10—12 μ in diameter, vel parum elongatis, usque ad 16 μ longis, 10.5 μ latis, episporio tenui, levi, æquali donatis, subhyalinis ; tegumento communi ex uno strato parenchymatico cellularum polygoniarum, membrana crassiuscula, badia, minutissime granulata præditarum efformato."

Habitat in foliis vivis *Lythri hyssopifolii*, pr. Melbourne Australiæ (Reader).

7. DOASSANSIA LIMOSELLÆ (Kunze) Schrœter. Pilzfl. Schles, p. 287 (1887); *Protomyces Limosellæ*, Kunze in Rabenh. Fungi Europæi, n. 1694; *Entyloma Limosellae*, Winter Die Pilze, p. 115; Exsicc. Rabenhorst, Fungi Europæi, n. 1694.

"Soris plerumque hypophyllis, verruculiformibus, 60—100 μ in diameter metientibus, in maculis orbicularibus, 1—2 mm. latis, brunneolis dispositis; sporis globosis vel irregulariter sphæroideis vel oblongis sæpeve angulatis, 9—14 μ in diameter, episporio tenui, levi, inæqualiter crasso, pallide brunneo donatis; tegumento communi ut in D. Niesslii."

Habitat in foliis *Limosellæ aquaticæ* in Germania.

8. DOASSANSIA DECIPIENS, Winter. New North American Fungi in JOURNAL OF MYCOLOGY, I, p. 102 (1885).

"Soris epiphyllis, greges minutos, rotundatos irregularesve, interdum confluentes pallide fusco-luteos, in macula indeterminata luteola insidentes, 1—5 mm. in diameter metientes formantibus, punctiformibus, rotundatis vel ellipticis, plerumque dense stipatis, haud raro cofluentibus, 100—200 μ latis, immersis, fuscis; sporis numerosissimis, densissime conglobatis, rotundato-polygonis, isodiametricis vel subellipticis, sæpe

irregularibus, 10—16 μ in diameter, episporio levi donatis, pallide fuscidulis, in planta adhuc viventi germinantibus; tegumento communi tenuissimo, pseudoparenchymatico e cellulis fuscis contexto denseque applicato; sporidiolis filiformibus, tenuissimis, sæpius flexuosis, usque ad 70 μ longis, vix 1 μ crassis."

Habitat in foliis *Limnanthemi lacunosi*, pr. Green Pond, Morris Co., N. Y., Americæ borealis (E. A. Rau).

9. Doassansia Epilobii, Farlow in Botanical Gazette, 1883, p. 277; Crypt. Flora White Mountains, p. 239. Exsicc.:—Ellis, North American Fungi, n. 1186.

"Sori globosis vel confluendo lobulatis, 80—200, rarius 250 μ in diameter metientibus, amphigenis, prominulis, plerumque ad apices foliorum gregatim collectis, in maculis sive areis pallide flavescentibus dispositis; sporis e globoso irregulariter polyhedricis, 7. 5—17 (plerumque 10—14 μ) in diameter, dense congestis, episporio tenuiusculo, levi donatis, pallide coloratis; tegumento communi e cellulis crasse tunicatis, atro-brunneis efformato."

Habitat in foliis *Epilobii alpini* ad margines torrentis "King's Ravine" in America boreali (Farlow).

10. Doassansia Hottoniæ (Rostr.) De Ton. *Entyloma Hottoniæ*, Rostrup in Thumen Mycotheca Universalis, n. 2222. Exsicc.:—Thumen, Mycoth. Univ., n. 2222.

"Soris hemisphæricis, gregariis, rufescentibus, 80—200 μ in diameter, raro oblongis; sporis rotundato-angulatis, 9—14 μ in diameter, episporio tenui, levi donatis, dilute fuscidulis; tegumento communi arcte adnato, distincte evoluto, brunneo."

Habitat in foliis vivis *Hottoniæ palustris*, pr. Skarup ins. Fioniæ in Dania (Rostrup et Johanson).

11. Doassansia Comari (Berk. et Br.), De Ton. et Massee in Herb. Kewensi; *Protomyces Comari*, Berk. et Broome in Ann. Nat. Hist., No. 1708; Berlese et De Toni, Syll. Phycomyc. in Sacc. Syll. Fung. omnium, Vol. VII, p. 321, No. 1135.

"Soris gregariis vel sparsis, siccitate atris, 1—1.5 mm. in diameter, metientibus; sporis late ellipticis, 10 x 7 μ, levibus, in sicco dilute vinosis, tegumento communi bene evoluto."

Habitat in foliis *Comari palustris*, pr. Forfar Britanniæ.

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26. Woronin, M.—Seltene Pilze Finnlands (Arb. St. Petersb. Gesellsch. d Naturf. Bd., XV, Heft 2, p. 104). St. Petersbourgh, 1884.

EXSICCATA.

27. Ellis, J. B., and Everhart, B. M.—North American Fungi.

28. Gandoger, J.—Flora gallica exsiccata.

29. Fuckel, L.—Fungi rhenani.

30. Rabenhorst, L.—Herbarium Mycologicum, edit. I et II.

31. ——— —.—Fungi Europæi.

32. Roumeguere, C.—Fungi gallici exsiccati.

33. Saccardo, P. A.—Mycotheca Veneta.

34. Thumen, F.—Mycotheca Universalis.

35. Vize, J. E.—Micro-Fungi Britannici.

A LICHEN NEW TO THE UNITED STATES.

BY EUGENE A. RAU.

Messrs. Eckfeldt & Calkins, in their list of the Lichen-Flora of Florida, published in a recent number of this JOURNAL, include some rare and interesting species. In regard to their No. 297, *Trypethelium heterochrous* (Mont.) Tuck., very rare, introduced from Cuba, I would beg to remark that I collected this lichen in April. 1885, and sent specimens to Dr. Eckfeldt for identification. For the benefit of those who have opportunities to search for lichens in Florida, I will mention that this rare species was found along the shore of Lake Osceola, Winter Park, in Orange county, growing upon living branches of *Ilex Dahoon*, Walt.

NEW WESTERN UREDINEÆ.

BY S. M. TRACY AND B. T. GALLOWAY.

Among the *Uredineæ* collected last summer by Tracy & Evans, we find the following species which appear to be new:

UROMYCES ARIZONICA, Tracy & Gal.—I. Hypophyllous; spots conspicuous, rather large, pale; æcidia numerous, in definite clusters, scattered or often crowded, small, short, border often somewhat coarsely torn; spores subglobose, epispore thin, smooth, 18—21 μ.—II and III. Epiphyllous; spots small, round or oval, reddish-brown, long covered by the epidermis.—II. Spores oval, pale, epispore thin, minutely echinulate, 20—22 x 23—25 μ.—III. Spores globose or obovate, apex sometimes slightly thickened, brown, 20—22 x 25—27 μ; pedicel one and a half to two times the length of the spores, hyaline, tapering towards the base. On leaves of *Eriogonum racemosum*, Flagstaff, Arizona, June 27, 1887.

PUCCINIA FRAGILIS, Tracy & Gal.—III. Amphigenous; sori scattered, long covered by the epidermis, which at length is irregularly ruptured; spores broadly oval, dark brown, minutely roughened, 21—33 x 30—34 μ, apex rounded, obtuse, not thickened, very slightly constricted, pedicel less than half the length of the spore, hyaline, very fragile. On leaves of *Arenaria pungens*, Reno, Nevada, June 19, 1887.

PUCCINIA CAULICOLA, Tracy & Gal.—II. Hypophyllous; sori very small, very numerous, covering the entire surface; spores subglobose, epispore thick, minutely roughened, usually with one or more prominent vacuoles, light brown, 15—17 x 20—22 μ.—III. On stems; sori scattered, usually elongated, black; spores oval, not constricted, 25—27 x 35—40 μ; apex much thickened, nearly hyaline, often with a similar thickening on one side of the lower cell, smooth; pedicel nearly hyaline, very long, several times the length of the spores. On *Salvia lanceolata*, Canon City, Colo., Aug. 21, 1887.

PUCCINIA VERTI-SEPTA, Tracy & Gal.—II and III. Amphigenous; sori prominent, black, round.—II. Spores oval, pale brown, 20—22 x 23—25 μ, epispore thick, slightly roughened.—III. Spores compressed-globose, divided by a distinct vertical septum, thus making each cell short boat-shaped, 28—30 x 34—35 μ; epispore thick, coarsely tuberculate; apex thickened, pedicel very long, variously bent and curved, hyaline. On leaves of *Salvia ballotæflora*, New Mexico, August.

ÆCIDIUM DRABÆ, Tracy & Gal —Hypophyllous; æcidia scattered over the entire surface, bright yellow, large, border lacerate or coarsely fringed, spreading; spores globose or oval, greenish-yellow, epispore thick, smooth, 18—21 x 24—28 μ. On leaves of *Draba aurea*, Coolidge, New Mexico, June 20, 1887.

ÆCIDIUM HELIOTROPII, Tracy & Gal.—Amphigenous; spots not large, definite, purplish; æcidia pale yellow, circinating, large, very long, the length about four times the diameter, border entire or sometimes lacerate; spores subglobose, epispore thin, minutely roughened, 16—19 μ. On leaves and stems of *Heliotropium curassavicum*, Albuquerque, New Mexico, June 17, 1887.

ÆCIDIUM ELLISII, Tracy & Gal.—Amphigenous; spots rather small; æcidia in definite clusters, often circinate, large, surrounded at the base by the ruptured epidermis, which is quite distinct, light orange-yellow, border lacerate; spores subglobose, with numerous vacuoles, epispore thick, slightly roughened, 18—22 μ. On leaves of *Chenopodium album*, Albuquerque, New Mexico, June 16, 1887.

ÆCIDIUM LEPIDII, Tracy & Gal.—Spots conspicuous; æcidia prominent, circinating, short, irregularly torn, soon becoming somewhat pulverulent; spores subglobose, epispore thin, 12—14 μ. On leaves of *Lepidium montanum*, Utah, July, 1887.

AGARICS OF THE UNITED STATES—GENUS PANUS.

EDWARD J. FORSTER, M. D., BOSTON.

The whole fungus is fleshy-coriaceous, tough, drying up, of fibrous texture, which radiates into the hymenium; gills concrete with the hymenophore, unequal, at length *coriaceous*, *edge quite entire;* spores even, white, somewhat cylindrical in species which have been examined. Growing on wood, various in form, lasting long. A genus which must be inserted in this series (between *Lentinus* and *Xerotus*) on account of its flesh, which is pliant and somewhat coriaceous, even in the gills, allied to the *Lentini*, but differing from them in the firmer, coriaceous and very entire gills. Either poisonous or owing to the toughness of the substance not suitable for eating. Fr. Hym. Eur., p. 487, Stevenson, British Fungi, Vol. II, p. 158. Name, *Panus*, a swelling or tumer, given to an arboreal fungus by Pliny, vide Fr. Epicr., p. 396.

The following are all the species (14) which have been described as found in the United States at this time. Fries gives only five of these in his Hym. Europ., viz.: Nos. 1, 2, 5, 6 and 9. *Panus rudis*, B. & C., is given in Sprague's list of New England fungi, but a description was never published, and the name is occupied by Fries, Hym. Eur., p. 489; it may have been a mistake for *Paxillus rudis*, B & C.

* Pileus irregular, stem excentric, 1, 2, 3, 4.

* * Stem definitely lateral, 5, 6, 7, 8, 9.

* * * Pileus resupinate, sessile or extended behind, 10, 11, 12, 13, 14.

* 1. PANUS CONCHATUS, Fr.

Pileus 2′—4′ broad, cinnamon, then becoming pale, fleshy-pliant, thin, unequal, excentric or dimidiate, flaccid, squamulose when old; stem ½′ long, 4″ thick, unequal, often compressed, pubescent at the base; gills strongly decurrent in parallel lines by no means anastomosing but here and there branched and unequal, at first whitish or pale flesh color, at length ochraceous wood color, crisped when dry, cæspitose, often imbricated and growing into each other. No form is constant. So much allied to *P. torulosus* that the real difference is not apparent. It is thinner, more conchate and more lobed than that species. Stevenson British Fungi, Vol. II, p. 159. Curtis found this in South Carolina, Frost near Amherst, Mass., Johnson in Minnesota, Cragin in Kansas and Morgan on trunks and branches of beech in the Miami Valley, Ohio. Name, *concha*, a shell, shell-shaped.

2. PANUS TORULOSUS, Fr.

Pileus 2′—3′ broad, somewhat flesh color, but varying, rufescent-livid and becoming violet, entire, but very excentric, fleshy, somewhat compact when young, plano-infundibuliform, even, smooth; flesh pallid; stem short, commonly 1′, solid, oblique, tough, firm, commonly with gray but often violaceous down; gills decurrent, somewhat distant, simple, separate behind, reddish, then tan color. Very changeable in form, at first fleshy-pliant, at length coriaceous. In the covering of the stem it approaches *Paxillus atro-tomentosus*, but there is no affinity between them. On old stumps. Spores 6 x 3 mk. W. G. Stevenson, British Fungi, Vol. II, p. 159. New York, Pack, 30th Rep., p. 44, on oak stumps, in May; Amherst, Mass., C. C. Frost; Kansas, Cragin; Minnesota, Johnson. Name, *torulus*, a tuft of hair, from the hairy down on the stem.

3. PANUS STRIGOSUS, B. & C.

Pileus white, 8 inches across, excentric, clothed with coarse strigose pubescence; margin thin; stem 2—3 inches high, 1 inch or more thick, strigose like the pileus; gills broad, distant, decurrent. Allied to *Panus laevis*. On oak stumps. New England, G. J. Sprague; Pennsylvania, Dr. Michener, Annals and Mag. N. H., October, 1859, Cent. N. A. F., No. 99; New York, Peck, 26th Rep., p. 66; on decaying wood of deciduous trees, Croghan, September. It is remarkable for its large size and the dense hairy covering of the pileus and stem. Minnesota, 1876, Johnson, August; Maryland, Banning. Name, *striga*, a swath, from character of pubescence.

4. PANUS TOMENTOSUS, Bundy.

Pileus 1′—1½′ wide, rather fleshy, becoming tough, depressed, nearly plane in some specimens, subinfundibuliform, dull yellowish, merging into purple, tomentous, outer zone densely covered with tawny hairs; margins incurved; gills narrow, decurrent, white, at first tinged with purplish; stem excentric, short, thicker below, densely covered with tawny hairs, 1′—1½′ high. Ironton, July, on oak logs. Geology of Wisconsin, Vol. I, p. 398, 1883. Name, *tomentum*, a stuffing for cushions (wool, hair, etc.), from the hairs on the pileus.

** 5. PANUS STIPTICUS, Fr.

Pileus ½′—1′ broad, cinnamon, becoming pale, acrid, thin, but not membranaceous, reniform, pruinose, the cuticle separating into furfuraceous scales; stem not reaching 1′ long, solid, definitely lateral, compressed, dilated upwards, ascending, pruinose, paler than the gills; gills ending determinately (not decurrent), thin, very narrow, crowded, elegantly connected by veins, cinnamon; gregarious cæspitose, remarkable for its astringent taste. The pileus sometimes has an infundibuliform appearance with lobes all round. On stumps; common. Reckoned poisonous spores obovoid-sphæroid, 2—3 x 1—2 mk.:—3 x 4 mk. W. G. S. Stevenson, British Fungi, Vol. II, p. 160. This has been found in New England by C. J. Sprague; South Carolina, Ravenel; Amherst, Mass., C. C. Frost; Florida, Calkins; New York, Peck, 33d Rep., p. 36, who says it "usually occurs on trunks of deciduous trees, but occasionally it is found on hemlock trunks;" Ohio, Morgan; Kansas, Cragin; Louisiana, Langlois. Ellis has distributed it in his third Cent. N. A. F. It is very common. Name, *stypticus*, astringent.

6. PANUS FARINACEUS, Schum.

Pileus cinnamon-umber, somewhat coriaceous, flexuous, cuticle separating into whitish bluish-grey scurf; stem short, lateral, of the same color as the pileus; gills determinately free, distinct, paler. The habit is that of *P. stipticus*. Stevenson, British Fungi, Vol. II, p. 160. Morgan, the only American writer who mentions this species (Mycologic Flora Miami Valley, Ohio), writes: "The pileus is brown or blackish, with a dense white pubescence. What I have found grew out of the cracks in the hickory bark." Name, *farina*, meal, from the scurf on the pileus.

7. PANUS LÆVIS, B. & C.

Pileus 3′ broad, orbicular, slightly depressed, white, clothed in the center with long, intricate, villous, rather delicate hairs, which are shorter and more matted towards the inflected margin, substance rather thin; stipe 3′ long, ½′ thick, attenuated upwards, generally excentric, sometimes lateral, not rooting, solid, strigose below, closely villous like the margin of pileus; gills rather broad, entire, decurrent, but not to a great degree; the interstices even above, behind clothed with the same coat as the top of the stem; spores white. A most distinct species, remarkable for its great lightness when dry and the long villous but not compressed, compound flocci of the pileus. Sometimes the center of the pileus be-

comes quite smooth when old. Trunks, South Carolina, Curtis, Annals and Mag. N. H., December, 1853. Cent. N. A. F., No. 33. New York, oak stumps, Wading River, September, Peck, 33d Rep., p. 21, writes: "The margin of the pileus is sometimes marked by small, oblique elevations or ridges which unite inwardly and thus form, with the edge of the pileus, small triangular spaces. Sometimes the two elevated lines which form the sides of a triangle divide near the margin and thus form two very small additional triangles. The pure white color and regular, even pileus make this a very pretty species. The color, however, becomes slightly tinged with yellow in drying. Name, *levis*, smooth.

8. PANUS DEALBATUS, Berk.

Pileus three-quarters of an inch broad, flabelliform, sometimes lobed; when moist, tough and flexible, umber-brown, striate; when dry, white and minutely cracked, as if whitewashed, with a dark border; stem quarter of an inch or more high, dilated upwards, compressed and often canaliculate, perfectly lateral, of the same color and texture as the pileus; gills narrower, umber-brown, distinct, without any veins in the interstices, decurrent and clothed below with a white stratum; when dry, brown, with a white edge. Allied to *A. farinacens*, Schum., but at once distinguished by its very decurrent gills. There are few prettier fungi than this when dry. Sometimes the stem is forked and each division produces a distinct pileus. (Des. New Species Fungi, etc., Thomas G. Lea, Cincinnati, 1849.) This fungus was discovered by Mr. Lea, on a dry dead branch, Waynesville, Ohio, Aug. 26, 1844; South Carolina, Curtis; Ohio, Morgan (Miami Valley) on branches of elm; New York, Peck, 33d Rep., p. 21; decaying wood of deciduous trees, Vernon, August. Name, *de-albo*, to whitewash, from appearance of pileus when dry.

9. PANUS FŒTENS, Secr.

Pileus pliant, spongy, spathelike, convex-depressed, somewhat silky, dirty white, stretched out behind into a long stem, the upper part of which is channelled; gills decurrent, firm, pressed together, flesh yellow, odor fœtid; stem 1½′ long, 4″ thick; pileus 2½′ broad. On pine trunks. Fr. Hym. Eur., p. 489. Name, *fœtor*, a stench, from the smell. This species is mentioned only by M. A. Curtis, who found it on dead wood in South Carolina.

* * * 10. PANUS DORSALIS, Bosc.

Pileus, 1½′—3′ broad, fleshy coriaceous, at first resupinate, afterwards expanded, sessile, somewhat reniform, tomentose, luteous, expallent, often imbricate and sessile or sometimes slightly stipitate; gills broad, rather distant, orange tawny; spores same color. On stumps and trunks. North and South Carolina, autumn and winter, dead pines. M. A. Curtis; South Carolina, winter, dead trunks of pine, Ravenel; Ohio, Morgan. The latter writes: "This I have no doubt is the same plant as *Agaricus nidulans*, Fr. I have observed it carefully in every stage and it agrees perfectly with the figure and description of Fries' *Icones*, except the substance is leathery and persistent, not putrescent." (Mycologic Flora

of Miami Valley, Ohio.) Bosc described this plant in the Berlin Magazine, 1811. Massachusetts, C. J. Sprague, Pro. B. S. N. H.; Florida, W. W. Calkins. Journ. Mycol., Vol II, p. 28; New York, C. H. Peck, Reports Botanist, 22d, p. 81, 30th, p 71. Peck writes: "The form which occurs here does not agree with the description of the species. It has no stem and is of a buff or pale yellow color. The cuticle does not break up into floccose scales, but the pileus is strigose hairy, especially toward the margin. The spores are of a beautiful fleshy-pink color like the lamellæ of young *Agaricus campestris*. It grows on beech and birch. I have not found it on pine. If the type is accurately described, our plant ought at least to be considered a distinct variety." Ellis has distributed this species in N. A. F., No. 912. Name, *dorsum*, the back, from it first being resupinate.

11. Panus angustatus, Berk.

Pileus about one inch long, coriaceo-submembranaceous, spathulate or flabelliform, narrowed behind, white, dirty white or yellowish, most minutely pubescent; upper stratum gelatinous; stem extremely short, being in fact little more than a continuation of the pileus; gills very narrow, close, decurrent, white, very minutely pubescent, yellowish when dry. Somewhat resembling *Panus copulatus*. Discovered by Mr. Thos. G. Lea on a dead log, Waynesville, Ohio, Sept. 10, 1844, Catalogue Plants of Cincinnati, 1849; South Carolina, M. A. Curtis; Morgan (Mycologic Flora of Miami Valley, Ohio) says it is common on old logs in woods. Name, *angustus*, narrow, from its pileus being narrowed behind.

12. Panus alliaceus, B. & C.

Small, strongly alliaceous, highly offensive; pileus 2′ or more across, stemless, suborbicular, at length slightly elongated, minutely tomentose behind, more distinctly so in front, where it is sometimes rather scabrous and hispid, dirty white, inclining to tawny or yellow, especially towards the edge; often more or less effused behind; gills of the same color as the pileus, distant, entire, moderately broad, attenuated behind, interstices even; spores white, with a very slight yellow tinge, minute, oblong, strongly curved. A fine species allied to *P. fœtens*, but without the least trace of a stem. The curved spores are very remarkable. In the young plant the pileus is nearly resupinate. On the putrescent stumps apparently of *Nyssa*, Curtis; also on *Salix nigra*, Ravenel, Annals and Mag. N. H., December, 1853, Cent. N. A. F., No. 34. Name, *allium*, garlic, from the smell.

13. Panus operculatus, B. & C.

Fasciculate, erumpent; pileus cup-shaped, one-half inch or more across, fixed by the apex, rufous, clothed with a scurfy pubescence, which at length vanishes; gills narrower, of the same color as the pileus, at first covered by a tympanoid veil. South Carolina, Curtis; New England, on bark, D. Murray. Allied to *P. Delastrii*, Mont. Annals and Mag. N. H., October, 1859, Cent. N. A. F., No. 100; New England, C. J. Sprague, Pro. B. S. N. H.; C. C. Frost, Cat. Plants, etc., Amherst College; New York, C. H. Peck, Rep. 27, p. 97, Rep. 30, p. 71, "not rare on

alder trunks and branches, the veil or operculum is very fugacious, so that it is rarely seen except on very young plants." Name, *operculo*, to cover, from being first covered by a veil.

14. PANUS SALICINUS, Peck.

Pileus 4"—6" broad, firm, thin, convex, deflexed or subpendant, hygrophanous, minutely farinaceo-tomentose, pinkish-grey; gills moderately broad and close, converging to an excentric point, dark ferruginous; stem very short or obsolete, obliquely attached to the vertex of the pileus; plant gregarious. Trunks of dead willows, *Salix discolor*, Center, N. Y.; 24th Rep., p. 77-78; Minnesota, Johnson, September and October. Name, *salix*, willow tree, from its habitat.

NEW KANSAS FUNGI.

BY J. B. ELLIS AND W. A. KELLERMAN.

VERMICULARIA SPARSIPILA, E. & K.—On living leaves of *Callirrhoe involucrata*, Rooks Co., Kansas. Leg. Mr. E. Bartholomew, No. 25. On dirty brown irregular-shaped spots ½—1 cm. in diameter; perithecia epiphyllous, erumpent, pale, 75 μ in diameter, subastomous, thickly scattered over the spots and sparingly clothed with a few (2—6) erect, dark brown, continuous hairs, 40—60 x 5 μ, arising mostly from near the vertex; sporules oblong-elliptical, 2-nucleate, 18—20 x 5—6 μ, hyaline, ends obtuse. *Aecidium tuberculatum*, E. & K., occurs on the same leaves.

AECIDIUM TUBERCULATUM, E. & K.—On leaves of *Callirrhoe involucrata*, Rooks Co., Kans. Leg. E. Bartholomew, No. 25. Amphigenous but more abundant below, springing from the midrib and nerves of the leaf, but without any definite spots; æcidia at first tubercular-hemispherical, ½—¾ mm. in diameter and closed, then open and cup-shaped, with the margin slightly toothed; spores deep orange-yellow, variable in size and shape, subglobose, 18—20 μ to subelliptical, oblong or ovate, 20—27 x 18—23 μ. This is quite distinct from *Aecidium Callirrhoes*, E. & K., which is on definite spots with smaller æcidia.

PHLEOSPORA CHENOPODII, E. & K.—On leaves of *Chenopodium album*, Manhattan, Kans., May, 1887. Kellerman & Swingle, No. 1187. Spots amphigenous, suborbicular, ¼—½ cm. in diameter, pale rusty brown, with a raised greenish margin and more or less concentrically wrinkled; perithecia amphigenous, erumpent-superficial, black, rather large, scattered, only imperfectly developed, the lower part nearly obsolete, broadly perforated above; sporules oblong-cylindrical, obtuse at each end, 3-septate, pale brownish, constricted at the septa, 20—35 (mostly 20—25) x 8—11 μ. This is quite distinct from *Septoria Chenopodii*, West., which has much narrower (and according to our European specimens) continuous sporules.

SEPTORIA GLYCYRRHIZÆ, E. & K.—On living leaves of *Glycyrrhiza lepidota*, Rooks Co., Kan. Leg. E. Bartholomew, No. 26. On dirty brown, subindefinite, rather irregular-shaped spots, 2—6 mm. in diameter; perithecia epiphyllous, minute, abundant, inconspicuous; sporules cylindrical-clavate, 40—60 x 3 μ, continuous.

SEPTORIA LUPULINA, E. & K.—On leaves of *Humulus Lupulus*, Cloud Co., Ks., Oct., 1887. Leg. M. A. Carleton. Spots pale yellowish-white, subangular and limited by the veinlets, 2—4 mm. across, subconfluent and occupying the greater part of the leaf; perithecia scattered, innate but visible through the cuticle on the upper side of the leaf, appearing of a dark lead color, sublenticular (150 μ), of coarse cellular structure; sporules 35—45 x 2—2½ μ, curved, a little thicker at one end, obtuse. We have no specimens of *S. Humuli*, West., but that is said to have the perithecia "scattered in the center of the spots" and smaller, having also smaller sporules. On the under side of the leaves in the Kansas specimens are minute, superficial, black perithecia filled with oblong-elliptical sporules, 2—2½ x ½ μ.

PHYLLOSTICTA CELTIDIS, E. & K.—On living leaves of *Celtis occidentalis*, Rooks Co., Kansas. Leg. E. Bartholomew, No. 103. Spots amphigenous, dirty brown, suborbicular or more or less irregular, 2 mm.—1 cm. in diameter, becoming paler (subcinereous) above; perithecia minute, black, hypophyllous, filled with minute, oblong sporules, 3—4 x ½—¾ μ, hyaline.

NOTES ON FUNGI FROM WESTERN KANSAS, U. S. A.

BY W. T. SWINGLE, MANHATTAN, KANSAS.

The species mentioned in the following list were collected in the western part of Kansas, U. S. A., during the fall of 1887. The specimens were sent to Prof. W. A. Kellerman to be identified. The species were named by him and myself, assisted by Mr. J. B. Ellis. In the notes, I have included: 1st, species new to the state; 2d, species on host plants new to the state; 3d, species interesting on account of variations, etc.

The following species were collected in Rooks Co., Kan., by Mr. E. Bartholomew, during September and October, 1887.

UREDINEÆ.

ÆCIDIUM TUBERCULATUM, E. & K.—On *Callirrhoe involucrata*, Gr.

MELAMPSORA CROTONIS, Burrill.—On *Croton monanthogynus*, Mx., II and III; on *Croton Texensis*, Mull., II and III.

PHRAGMIDIUM MUCRONATUM (Pers.) Lk.—On *Rosa Arkansana*, Porter, II and III.

PUCCINIA FLOSCULOSORUM (Alb. & Schw.) Rœhl.—On *Vernonia ovalifolia*, T. & G., III.

PUCCINIA XANTHII, Schw.—On *Ambrosia psilostachya*, DC., III.

UROMYCES APPENDICULATA (Pers.)—On *Phaseolus*, sp. cult., III.

UROMYCES SCIRPI, Burrill.—On *Scirpus atrovirens*, Muhl., III.

UROMYCES GRAMINICOLA, Burrill.—On *Panicum virgatum*, L., III.

UROMYCES ŒNOTHERÆ, Burrill.—On *Œnothera Fremontii*, Watson, III. (Identified by Ellis.)

SPHÆROPSIDEÆ.

PHOMA VIRGINIANA, Ell. & Halsted.—On *Prunus Virginiana*, L.

VERMICULARIA SPARSIPILA, E. & K.—On *Callirrhoe involucrata*, Gr. *Æcidium tuberculatum*, E. & K., occurs on the same leaves.

PHYLLOSTICTA CELTIDIS, E. & K.—On *Celtis occidentalis*, L.

PHYLLOSTICTA VITICOLA, Thum.—On *Vitis riparia*, Mx. The specimens agree with the description in every respect.

SEPTOBIA GLYCYRRHIZÆ, E. & K.—On *Glycyrrhiza lepidota*. Nutt.

SEPTORIA GROSSULARIÆ, West.—On *Ribes aureum*, Ph.

SEPTORIA LACTUCICOLA, E. & M.—On *Lactuca Floridana*, DC. Sterile.

PHLEOSPORA CELTIDIS, E. & M.—On *Celtis occidentalis*, L.

PIGGOTIA FRAXINI, B. & C.—On *Fraxinis viridis*, Mx.

GLŒOSPORIUM ARGEMONIS, E. & E.—On *Argemone platyceras*, Link & Otto (JOURN. MYCOL., Vol. III, p. 129.

GLŒOSPORIUM TOXICODENDRI, E. & M.—On *Rhus Toxicodendron*, L. Spores 40—60 x 2½—3 μ, nucleate, not "12—15 x 5—6 μ". Specimens collected at Manhattan, Ks., July, 1887, by Kellerman & Swingle have spores 27—40 x 2—2½ μ.

DEMATIEÆ.

CERCOSPORA ALTHEINA, Sacc.—On *Callirrhoe involucrata*, Gr. Hyphæ 60—75 x 3—5 μ, somewhat submerged at base, having shoulder-like projections, seemingly open at end; conidia 75—120 x 2—3 μ, slightly clavate, hyaline, multiseptate.

CERCOSPORA CLAVATA (Gerard) Pk.—On *Asclepias speciosa*, Torr. Spots none; hyphæ amphigenous, effused, forming large, irregular dark patches.

CERCOSPORA CUCURBITÆ, E. & E.—On *Cucurbita perennis*, Gr. (JOURN. MYCOL., Vol. IV, p. 3).

CERCOSPORA GLANDULOSA, E. & K.—On *Ailanthus glandulosus*, Desf. Agrees with description in JOURN. MYCOL., Vol. I, p. 3, except that the conidia are 24—36 x 2—4 μ not "70—100 x 3—3½ μ".

CERCOSPORA HELIANTHI, E. & E.—On *Helianthus doronicoides*, Lam. Typical form (JOURN. MYCOL., Vol. III, p. 20). Mr. Bartholomew also sent the amphigenous form mentioned in JOURN. MYCOL., Vol. III, p. 6, on *Helianthus Maximiliana*, Schrad. The specimens he sent have the following characters: Hyphæ amphigenous, clustered, light coffee-color, 60—120 x 4—6 μ; septate, nucleate, irregularly bent, especially

at the tip; conidia 60—105 x 3—6 μ, clavate, 2—3-septate, very light coffee-color, slightly nucleate. The tufts of hyphæ are usually more abundant on the lower side of the leaf.

CERCOSPORA OXYBAPHI, Ell. & Halsted.—On *Oxybaphus nyctagineus*, Sweet. Very good specimens.

CERCOSPORA ROSÆCOLA, Pass.—On *Rosa Arkansana*, Porter.

CERCOSPORA PACHYPUS, E. & K.—On *Helianthus petiolaris*, Nutt., Form mentioned in JOURN. MYCOL., Vol. IV, p. 7. The specimens sent have the following characters: Spots at first minute, white, then increasing in size and finally becoming dirty brown; hyphæ amphigenous, olivaceous, clustered, 36—45 x 6—8 μ; conidia slightly colored, at first globular, finally 40—90 x 5—7 μ, 1—3-septate. The leaves are often overrun with the spots, giving them a peculiar pale appearance.

CERCOSPORA SILPHII, E. & E.—On living radical leaves of *Silphium integrifolium*, MX. The conidia were larger than the description in the JOURN. MYCOL., Vol. IV, p. 3, states. They were 75—100 x 3—6 μ, instead of "70—80 x 3 μ".

CERCOSPORA ASCLEPIODORÆ, E. & K.—(JOURN. MYCOL., Vol. IV, p. 6.) On *Asclepias Jamesii*, Torr.

CHYTRIDIACEÆ.

SYNCHYTRIUM FULGENS, Schrœter.—On radical leaves of *Œnothera biennis*, L.

The following species were collected by Mr. M. A. Carleton in October, 1887:

UREDINEÆ.

PUCCINIA ANGUSTATA, Pk.—On *Scirpus*, Mitchell county, Kansas. Teleutospores.

PUCCINIA PHRAGMITES (Schum.) Kornick.—On *Spartina cynosuroides*, Willd., Mitchell Co., Kan. Teleutospores.

MUCEDINEÆ.

PERONOSPORA EFFUSA (Grev.)—On *Chenopodium album*, L., Cloud Co., Kan.

DEMATIEÆ.

CERCOSPORA ASCLEPIADIS, Ell.—On *Asclepias* (*arenaria*) *Cercospora clavata* (Gerard) also occurs on the under sides of the same leaves. Cloud Co., Kan.

NEW LITERATURE.

BY W. A. KELLERMAN.

"UNCINULA POLYCHÆTA, B. & C." By S. M. Tracy & B. T. Galloway, Botanical Gazette, February, 1888.

"SOME RESULTS OF MYCOLOGICAL WORK IN U. S. DEPT. OF AGRICULTURE." F. Lamson Scribner, Botanical Gazette, January, 1888.

"IOWA PYRENOSPOREÆ AND A DRY SEASON." Byron D. Halsted, Botanical Gazette, March, 1888.

One species of *Phytophthora*, twenty of *Peronosporea* and four of *Cystopus* are spoken of in detail and the conclusion drawn was that the species of this group are best suited to moist weather. The genus *Cystopus* was less influenced by drouth. When the *Peronosporeæ* flourished it was with succulent herbs.

"HEINRICH ANTON DE BARY: NOTICE OF DEATH AND REVIEW OF HIS LIFE." l. c.

"A SATISFACTORY RULING AT LAST," being a letter from the third assistant postmaster general containing the ruling that labels accompanying specimens may contain name of species, date of collecting and collector's name, the rate of postage remaining that for fourth class matter. l. c.

"THE DEATH OF DE BARRY." Letter by Wm. R. Dudley to the editors of Botanical Gazette. l. c.

"DE LA FORMATION DE DEUX HYMENIUMS FERTILES SUR L'UNE ET L'AUTRE FACE DU CHAPEAU DANS UN POLYPORUS APPLANATUS, WALLR." Par Edouard Heckel. Revue Mycologique, Janvier, 1888.

"UN NOUVEAU GENRE DE PYRENOMYCETES SPHERIACEES." Note de P. A. Saccardo. l. c.

The genus and its diagnosis is as follows: *Berlesiella*, Sacc. Perithecia subcarbonacea, atra, globulosa, stromate pulvinato vel hemispharico, v. effuso carbonaceo, inserta, discreta vel basi tantum connexa, botryosoprominula, setosa, ostiola minuto vel obsoleto; asci elongati (spurie paraphysati, octospori); sporidia ovoideo-oblonga 2-pluri septata et muriformia. e hyalino flaveolo. A *Cucurbitaria* et *Botryosphœria* vere diversum.

"FUNGI EUROPÆI PRECIPUE GALLICI EXSICCATI." Centurie XLIVe, C. Roumeguere. l. c.

"LE NOUVEAU GENRE PELTOSPAÆRIA." Par A. N. Berlese. l. c.

Peltosphœria, Berl. Perithecia sparsa, epidermide tecta et basi ligno infossa sursum clypeo stromatico atro tecta raro bina subeodem clypeo; ostiola vix erumpentia, brevia; asci cylindracei, sessiles, paraphysati, octospori; sporidia monosticha ovoidea, septata, muriformia.

"THE CHARACEÆ OF AMERICA." By T. F. Allen. Part I. Introduction, Morphology, Classification, pp. 1-64.

"MONOGRAFIA DEI GENERI PHLEOSPORA, CLATHROSPORA E PYRENOPHORA." Di Augusto Napoleone Berlese. Nuovo Giornale Botanico Italiano. 31 Gennaio, 1888, pp. 5-176.

"Rabenhorst's Kryptogamen-Flora." Pilze von Dr. G. Winter. 29th Lieferung, Discomycetes (Pezizaceæ); bearbeitet von Dr. H. Rehm, pp. 65-128.

"The Mycologic Flora of the Miami Valley, Ohio." By A. P. Morgan, continued from p. 18, Vol. X. The Journal of the Cincinnati Society of Natural History, Vol. X, No. 4.

"Bulletin of the New York State Museum of Natural History," Vol. I, No. 2, May, 1887. Contributions to the botany of the state of New York. By Charles H. Peck, state botanist.

Thirteen of the species are figured on two lithographic plates; the articles are as follows:

"Descriptions of New Species of New York Fungi."

"Descriptions of New York Species of Fungi belonging to the genera *Paxillus*, *Cantharellus* and *Craterellus*."

"Names of New York Species of Pyrenomycetous Fungi according to the Saccardoan arrangement."

"Descriptions of New York Species of viscid *Boleti*."

"Additions to Scotch Peronosporeæ." James W. H. Trail. The Scottish Naturalist, January, 1888.

"Some Exotic Fungi." By M. C. Cooke, Grevillea, March, 1888.

"Australian Fungi." By M. C. Cooke. l. c.

"New British Fungi." By M. C. Cooke. l. c.

"Notes on Hymenomycetes." By M. C. Cooke. l. c.

"Synopsis Pyrenomycetem, continued." l. c.

"Laschiæ Nova Species. Descripsit Rob." Fries. l. c.

"New British Discomycetes." By William Phillips. l. c.

"British Hyphomycetes, continued." l. c.

"Notes on the Genus Taphrina." By Benjamin L. Robinson, pp. 163-176. (Reprint from Annals of Botany, I, II, November, 1887.)

"Le Greeneria fuliginea, nouvelle forme de Rot des fruit de la Vigne, observee en Amerique," Par Mm. L. Scribner et Pierre Viala (pp. 2, 12 September, 1887.)

HERBARIUM FOR SALE.

The large and valuable herbarium of Dr. Winter is now offered for sale by F. Stephani, Leipzig, Kaiser Wilhem's Str. 9, Germany, who will give farther information upon application.

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Index to Described Species.

N. B.—Nos. 3 and 4 will be issued combined in May.

JOURNAL OF MYCOLOGY.

Vol. IV. MANHATTAN, KAN., April, May, 1888. Nos. 4, 5.

NOTES ON WESTERN ERYSIPHEÆ AND PERONOSPOREÆ.

BY S. M. TRACY AND B. T. GALLOWAY.

During the past two years the writers have collected *Erysipheæ* and *Peronosporeæ* in Missouri, Wisconsin, Colorado, New Mexico, Utah, Arizona and southern California. It has been a matter of no little surprise to them to find how wide is the distribution of most species of *Erysipheæ*, there being very few mentioned in any of the catalogues published in the western states which have not been found in widely separated localities. The distribution of most species has been found to be much wider than is that of any one of its hosts. Where a species is commonly limited to plants of a single order in any locality, it has not in any case been found on plants outside that order, although in some cases when new genera were noted in the flora, the fungus was no longer found upon the hosts where first observed. As an instance of this, *Podosphæra oxycanthæ* is frequently found on several species of *Cratægus* and *Prunus* in the Mississippi valley, while in the Rocky Mountain region, where both *Cratægus* and *Prunus* are found abundantly, the *Podosphæra* is found on *Prunus demissa*, a near relative of *P. Virginiana* and has not been noted upon *Cratægus* or *P. Virginiana*, which are both abundant. In the west, *Erysiphe cichoraceareum*, DC., takes *Stachys palustris* as its host in the place of *Teucrium* in the east; *Mertensia*, the place of *Hydrophyllum;* and many other similar instances will be noted in the accompanying list. The number of *Peronosporeæ* found in the arid regions was very small, and the few which were taken were, without exception, found high on the mountains or in deep mountain canons, where the melting snows furnished constant and abundant moisture. The accompanying list does not claim to approach completeness except for Missouri, the notes from other states being added simply as a matter of record.

ERYSIPHEÆ.

SPHÆROTHECA CASTAGNEI, Lev.—On *Taraxacum officinale*, *Bidens frondosa*, *Vernonia noveboracensis* (Missouri); *Viola cucullata*, *Viola canina*, var. *sylvestris* (Golden, Colorado).

SPHÆROTHECA HUMULI (DC.) Burrill.—On *Agrimonia eupatoria* (Missouri); *Geum macrophyllum* (Wisconsin).

SPHÆROTHECA MORS UVÆ (Schw.) B. & C.—On *Ribes rotundifolium* (Missouri). The perithecia were found only on the fruit.

SPHÆROTHECA PANNOSA (Wallr.) Lev.—On *Rosa lucida* and cultivated Roses (Missouri). In our specimens, the appendages are colored near the base, as described by Tulasne (Fung. Carp. Select., I, page 208).

SPHÆROTHECA PRUINOSA, C. & P.—On *Rhus copallina* (Missouri). This species was collected in southern Missouri in 1886 and it agrees very well with the published description of the authors.

SPHÆROTHECA LANESTRIS, Hark.—This remarkable species was taken near Napa City, California, upon the young shoots of *Quercus agrifolia*. The tree from which the specimens were obtained was a large one, the trunk being fully two feet in diameter, and its peculiar appearance attracted attention a considerable distance. The dense mycelium completely covers the young leaves and twigs, causing the former to shrivel and cease growing before they attain one-fourth their usual size. The perithecia are frequently overlooked as they are buried in the dense mats of mycelium.

PODOSPHÆRA OXYCANTHÆ, DC.—On *Amelanchier Canadensis*, *Prunus domestica*, *Prunus cerasus*, *Spiræa*, *Cratægus crus-galli* (Missouri); *Cratægus oxycantha* (Wisconsin); *Prunus demissa* (Colorado and Utah). The form on *Spiræa* agrees with the published specimen in Ellis North American Fungi distributed as *Microsphæra*.

ERYSIPHE CICHORACEARUM, DC.—On *Verbena urticæfolia*, *Verbena hastata*, *Plantago major*, *Ambrosia trifida*, *Ambrosia artemisæfolia*, *Vernonia noveboracensis*, *Helianthus annuus*, *Galium aparine* (Missouri); *Aster corymbosus*, *Hydrophyllum Virginicum*, *Inula helenium*, *Phlox paniculata* (Wisconsin); *Solidago Canadensis*, *Stachys palustris*, *Dysodia chrysanthemoides*, *Verbesina enceliodes*, *Iva xanthiifolia* (Colorado); *Rudbeckia occidentalis*, *Helianthella Parryi*, *Mimulus luteus*, *Humulus lupulus*, *Mertensia Siberica*, *Ambrosia psilostachya* (Utah). It is seen that several of the hosts named above upon which this widely distributed species occurs are new, and yet in all the specimens examined we find the characters as set forth by Burrill and Winter quite constant throughout.

ERYSIPHE COMMUNIS (Wall.) Fr.—On *Pniacæ*, cult., *Dahlia*, cult., *Pea*, cult., *Phaseolus perennis*, *Phaseolus helvolus* (Missouri); *Astragalus Canadensis*, *Geranium maculatum*, *Clematis Virginiana*, *Aquilegia Canadensis* (Wisconsin); *Thermopsis Montana*, *Trifolium involucratum*, *Clematis ligustifolia* (Colorada); *Lathyrus polymorphus*, *Lupinus argenteus*, var. *argophyllus*, *Astragalus junceus*, *Astragalus Canadensis*, *Thermopsis* (Utah); *Ranunculus cymbalaria* (Nevada).

ERYSIPHE TORTILIS (Wallr.) Winter.—On *Cornus sanguinea* (Missouri).

ERYSIPHE GALEOPSIDIS, DC.—On *Scutellaria parvula* (Wisconsin).

ERYSIPHE GRAMINIS, DC. (?)—On *Elymus condensatus* (Palisade and Reno, Nevada). This fungus was found in abundance at the stations named and it is somewhat remarkable for its very large perithecia and the number of asci. The spores were not sufficiently developed to distinguish their number, so that for the present we have referred the species to *E. graminus*, of which it is probably only a form. Our specimens give the following characters:

Amphigenous, but most abundant upon the lower surface; mycelium persistent in irregular patches, sometimes covering the entire surface, reddish-brown; perithecia very large, 225—250 μ in diameter; appendages dark brown, short, crooked, scarcely distinguishable from the mycelium with which they are interwoven; asci 27—34, usually about 30, elliptical, spores not seen.

UNCINULA AMPELOPSIDIS, Pk.—On cultivated *Vitis*, *Ampelopsis quinquefolia* (Missouri and Wisconsin).

UNCINULA CIRCINATA, C. & P.—On *Acer dasycarpum* (Missouri).

UNCINULA FLEXUOSA, Pk.—On *Æsculus glabra* (Missouri). Our specimens of this species were contributed by Rev. C. H. Demetrio, who collected them in Perry county. They agree very well with specimens collected by Mr. Peck in New York.

UNCINULA MACROSPORA, Pk.—On *Ulmus Americana* (Missouri).

UNCINULA PARVULA, C. & P.—On *Celtis occidentalis* (Missouri).

UNCINULA SALICIS (DC.) Winter.—On *Salix falcata*, *Salix nigra* (Missouri); *Populus angulatus*, *Populus tremuloides* (Wisconsin).

MICROSPHÆRA RUSSELLII, Clinton.—On *Oxalis stricta* (Missouri).

MICROSPHÆRA DIFFUSA, C. & P.—On *Desmodium Canadense* (Missouri).

MICROSPHÆRA EUPHORBIÆ, B. & C.—On *Euphorbia corollata* (Missouri).

MICROSPHÆRA ALNI (DC.) Winter.—On *Viburnum prunifolium*, *Platanus occidentalis* (Missouri); *Celastrus scandens*, *Lonicera glauca*, *Cornus stolonifera* (Wisconsin).

MICROSPHÆRA FRIESII, Lev.—On *Syringa vulgaris* (Missouri).

MICROSPHÆRA QUERCINA (Schw.) Burrill.—On *Quercus rubra*, *Quercus alba* (Missouri).

MICROSPHÆRA RAVENELLII, Berk.—On *Gleditschia triacanthos* (Missouri).

MICROSPHÆRA SYMPHORICARPI, Howe.—On *Symphoricarpus vulgaris* (Missouri).

PHYLLACTINIA SUFFULTA (Reb.) Sacc.—On *Betula nigra*, *Cornus*, sp. (Missouri); *Celastrus scandens*, *Corylus Americana* (Wisconsin).

PERONOSPOREÆ.

PERONOSPORA ARTHURI, Farlow.—On *Œnothera biennis* (Missouri).

PERONOSPORA AUSTRALIS, Spez.—On *Sicyos angulatus* (Missouri).

PERONOSPORA VITICOLA (B. & C.) DeBy.—On *Vitis*, various species and cultivated varieties (Missouri).

PERONOSPORA HALSTEDII, Farlow.—On *Vernonia noveboracensis* (Missouri). So far as we know, this species has been collected but once within the borders of Missouri.

PERONOSPORA OBDUCENS (Schroter).—On *Impatiens pallida* (Missouri).

PERONOSPORA GERANII, Pk.—On *Geranium Carolinianum* (Missouri).

PERONOSPORA ENTOSPORA, B. & Br.—On *Aster novæ-angliæ* (Missouri).

PERONOSPORA ALTA, Fckl.—On *Plantago major* (Missouri).

PERONOSPORA GANGLIFORMIS (Berk.) DeBy.—On *Mulgedium*, sp. *Lactuca Canadensis* (Missouri).

PERONOSPORA SORDIDA, Berk.—On *Scrophularia nodosa* (Missouri).

CYSTOPUS BLITI (Biv.) Lev.—On *Amarantus retroflexus*, *Amarantus albidus* (Missouri and Colorado).

CYSTOPUS CANDIDUS (P.) Lev.—On *Capsella bursa-pastoris* (Missouri).

CYSTOPUS PORTULACÆ (DC.) Lev.—On *Portulaca oleracea* (Missouri).

CYSTOPUS CUBICUS (Strauss) Lev.—On *Tragopogon porrifolius*, *Senecio aureus* (Missouri); *Ambrosia artemisiæfolia* (Colorado and New Mexico).

SOME MILDEWS OF ILLINOIS.

BY L. H. PAMMEL, ST. LOUIS, MO.

For the past two seasons I have had an opportunity of collecting at several points in Illinois, near Chicago at Palatine, Cheltenham, Argyle Park and Lake View; also in the bottoms opposite St. Louis, which is a rich field for the collector not only in phænogams but fungi.

In the species enumerated, I have adopted the synonomy of the excellent paper on "The Erysipheæ of Illinois" by Prof. T. J. Burrill and Mr. F. S. Earle. From this paper it seems that some species are somewhat local, so that it will be of interest to add new localities for those and also such additional hosts as they were found on. One species new to the state has also been added.

SPHÆROTHECA CASTAGNEI, Lev.—On *Bidens chrysanthemoides*, Bluff Lake, Oct., '86; *B. connatus*, Bluff Lake, Nov., '87; *B. frondosa*, Chicago, Sept., '85; *Coreopsis aurea*, Argyle Pk., Aug., '87; *Taraxacum officinale*, Lake View, Sept., '85; *Veronica Virginica*, Bluff Lake,. Nov, '86.

SPHÆROTHECA HUMULI (DC.) Burrill.—On *Agrimonia Eupatoria*, Cheltenham, Sept., '85, Lake View, Aug., '87.

SPHÆROTHECA PANNOSA (Wallr.) Lev.—On *Rosa lucida*, Lake View, Aug., '87. Mycelium abundant on cultivated as well as wild Roses. Fruiting specimens not common.

ERYSIPHE COMMUNIS (Wallr.) Fr.—On *Amphicarpæa monoica*, Bluff Lake, Oct., '86; *Desmanthus brachylobus*, Bluff Lake, Oct., '87. Perithecia abundant on stems and branches. Fruit generally maturing after the leaves have fallen. *Ranunculus abortivus*, Fish Lake, Oct., '86. An abundance of mycelium was frequently found on young leaves and stems of *Astragalus Canadensis*, which very likely was the conidial stage of this species.

ERYSIPHE GALEOPSIDIS, DC.—On *Stachys palustris*, Bluff Lake, Oct., '86.

ERYSIPHE CICHORACEARUM, DC.—On *Ambrosia trifida*, East. St. Louis, Sept., '86, Lake View, Aug., '87; *Aster cordifolius*, Evanston, Aug., '86; *A. Drummondii*, Bluff Lake, Oct., '86, Lake View, Aug., '86; *A. diffusus*, Indian Lake, Oct., '87; *A. ericoides*, Fish Lake, Oct., '87; *A. junceus*, Lake View. Asci very often with three ascospores; *A. sagittifolius*, Bluff Lake, Oct., '87; *Cnicus altissima*, Bluff Lake, Oct., '87; *C. altissima*, var. *discolor*, Indian Lake, Oct., '87; *Helianthus annuus*, Lake View, Sept., '85; *H. doronicoides*, Fish Lake, Oct., '87; *H. grosseserratus*, Bluff Lake, Oct., '86; Cult. *H. tuberosus*, Cheltenham, Oct., '85; *Pilea pumila*, Bluff Lake, Oct., '87; *Solidago Canadensis*, Bluff Lake, Oct., '87; *Tecoma radicans*, Bluff Lake, Oct., '86; *Verbena stricta*, Cheltenham, Oct., '85; *V. urticæfolia*, Bluff Lake, Oct., '87; *Vernonia Baldwinii*, East St. Louis, Oct., '86; *V. fasciculata*, Indian Lake, Oct., '87; *Xanthium Canadense*, Lake View, Oct., '85, East St. Louis, Oct., '87.

UNCINULA AMPELOPSIDIS, Pk.—On *Ampelopsis quinquefolia*, Cheltenham, Oct., '85, Lake View, Sept., '86, Bluff Lake, Oct., '87; cult. *Vitis*, Englewood, Aug., '86, East St. Louis, Oct., '87. An abundance of mycelium on *Vitis cinerea*, East St. Louis, somewhat later I found good fruiting material on cultivated specimens of the same species in Botanic Garden.

UNCINULA CIRCINATA, C. & P.—On *Acer dasycarpum*, Bluff Lake, Oct., '86, Oct., '87; very common. Our specimens are amphigenous, in some there is an abundance of mycelium on the upper as well as the lower surface of the leaf. The lower surface of the leaf is often covered quite uniformly with the persistent mycelium; on the upper it appears in roundish patches, which are often confluent with age.

UNCINULA GENICULATA, Gerard (in Bull. Torrey Bot. Club, Vol. IV, p. 48). Epiphyllous; mycelium persistent, in roundish spots or sometimes covering the entire upper surface of the leaf, not conspicuous; perithecia small, 80—90 μ in diameter, opaque, reticulations small, appendages hyaline, roughened, and often geniculate, usually twice as long as the diameter of the perithecium; asci 6—8, ovate; pedicels short; ascospores 4—6, usually 6, elliptical or oval, 7—12 x 12—16 μ. On *Morus rubra*, Bluff Lake, Oct., '86, Oct., '87.

UNCINULA MACROSPORA, Peck.—On *Ulmus Americana*, Bluff Lake, Oct., '86.

UNCINULA SALICIS (?) [DC.] Winter.—On *Salix*, sp., Cheltenham, Oct., '85; *S. cordata*, Lake View, Aug., '86.

PODOSPHÆRA OXYACANTHÆ (DC.) DBy.—On *Prunus Cerasus*, Englewood, Sept., '85; Fish Lake, Oct., '86. Frequently accompanied with *Cicinobolus Cessattii*, DBy.

MICROSPHÆRA ALNI (DC.) Winter.—On *Corylus Americana*, Palatine, Aug., '86; *Enonymus atropurpureus*, Bluff Lake, Oct., '87; *Forestiera acuminata*, Indian Lake, Sept., '86, Oct., '87; *Lonicera glauca*. Lake View, Aug., '86; *Sambucus Canadensis*, Cheltenham, Oct., '85, Lake View, Aug., '86, Bluff Lake, Oct., '86; *Syringa vulgaris*, Cheltenham, Oct., '85, Englewood, Oct., '85, Chicago, Aug., '86; *Lonicera glauca*, Lake View, Aug., '86.

MICROSPHÆRA DIFFUSA, C. & P.—On *Desmodium Canadense*, Cheltenham, Oct., '85, Lake View, Aug., '86; *D. canescens*, Lake View, Aug., '86.

MICROSPHÆRA ELEVATA, Burrill.—On *Catalpa*, sp., East St. Louis, Oct., '86.

MICROSPHÆRA QUERCINA (Schw.) Burrill.—On *Quercus imbricaria*, Bluff Lake, Nov., '86; *Q. macrocarpa*, Bluff Lake, Oct., '87.

MICROSPHÆRA RUSSELLII, Clinton. — On *Oxalis corniculata*, var. *stricta*, Palatine, Aug., '86, Bluff Lake, Oct., '87.

MICROSPHÆRA SEMITOSTA, B. & C.—On *Cephalanthus occidentalis*, Bluff Lake, Oct., '86.

MICROSPHÆRA SYMPHORICARPI, Howe.—On *Symphoricarpus vulgaris*, Bluff Lake, Oct., '86.

SYNOPSIS OF THE NORTH AMERICAN SPECIES OF HYPOXYLON AND NUMMULARIA.

BY J. B. ELLIS AND B. M. EVERHART.

I. Macroxylon. Large, indurated, irregular, fibrous within.

a. Perithecia monostichous.

HYPOXYLON BROOMEIANUM, B. & C.*—Grev., IV, p. 94. On rotten logs. South Carolina, Rav., No. 1894. Irregular, brown, about 1¼ inches across, with a raised obtuse margin, about ⅛ of an inch thick, brownish (within); surface quite even, with the exception of the punctiform ostiola; asci linear; sporidia uniseriate, elliptic, sec. Cke., in Grev., XI, p. 124, 12 x 14 μ.

*For the sake of brevity, lists of synonyms and references to the different Exsiccati have been mostly omitted. The subgenera are those adopted by Cooke in Grevillea.

b. Perithecia stratose.

HYPOXYLON OVINUM, Berk.—Grev., XI, p. 129. On wood, Orizaba, Mexico. Hemispheric or confluent-elongated, dark purple, hard, smooth, subshining, dark within; perithecia stratose, black, subglobose; ostiola obsolete; asci cylindrical; sporidia elliptical, dark, 16—18 x 7 μ.

HYPOXYLON PETERSII, B. & C.—Journ. Linn. Soc., X, p. 384. On rotten oak. Alabama (Peters), on dead wood; Cuba (Wright); on oak logs, Ohio and Kentucky (Morgan). Stroma pulvinate, depressed-obconic, centrally attached with a spreading margin, 3—4 x 2½—3 cm. across, covered at first by a thick, coriaceo-membranaceous veil which soon disappears except around the margin; substance corky-fibrous, hard, dull umber color, becoming darker outside; perithecia crowded in several layers, subglobose or subelongated, ½—¾ mm., with slender necks ending in distinctly prominent papilliform ostiola; sporidia uniseriate or subbiseriate above, narrowly-elliptical, brown, 6—8 x 3½—4 μ; asci cylindrical (p. sp.), about 40 x 5 μ or including the slender base 60 μ long.

The foregoing description is from Morgan's Ohio specimens, which have been compared by Dr. Farlow with specimens in Herb. Curtis. In the original description, in Linn. Journ., no mention is made of the thick, membranaceous veil, which is a striking and unusual character.

II. Sphæroxylon. Stroma superficial, globose or subglobose.

a. Externally colored, not black.

HYPOXYLON COCCINEUM, Bull. (*Sphæria fragiformis*, Pers.)—Stroma erumpent-superficial, subglobose, generally from ¼—¾ cm. in diameter, deep brick-red when mature, often paler when young, solitary or subconfluent; perithecia peripheric in a single layer, small, subglobose, slightly prominent; asci cylindrical, spore-bearing part 70—80 x 6—7 μ, paraphyses abundant, simple; sporidia uniseriate, opaque, inequilateral-elliptical, 10—12 x 4—5 μ. Generally on bark of dead beech trees, but also on oak, willow, birch and some other trees. Common throughout the United States and Canada as well as in Europe. This and the next species are often accompanied by an abnormal growth (*Institale acariforme*, Fr.) consisting of a spreading fringe of somewhat flattened, ochraceous or rust colored, more or less branched processes surrounding the base of the stroma and about equal in length to its diameter and bearing an abundance of very minute, obovate, subhyaline conidia. Whether this should be considered the true conidial stage of the *Hypoxylon* is doubtful, as its occurrence is exceptional. The case is in some respects analogous to that of *Sphæria flabelliformis*, Schw., and the *Xylaria* from which it springs, but with this difference: the affected *Xylaria* is always abortive, while the *Hypoxylon* surrounded with its conidial fringe matures its fruit.

HYPOXYLON HOWEIANUM, Pk.—24th Rep. N. Y. State Mus., p. 98. On dead limbs of deciduous trees. N. Y. (Peck), on *Ostrya Virginica;* Iowa (Holway), on dead standing shrubs and fallen limbs of oak; N. J. (Ellis), on dead limbs; Pennsylvania (Everhart & Rau.); Ohio (Morgan);

Nebraska (Miss L. S. Dond). Stroma depressed-globose, 5—15 mm. across, light brick-red, nearly smooth but closely punctate by the minute black ostiola, solitary or subconfluent; perithecia peripheric, monostichous, minute, ovate, ¼—⅓ mm. high; asci (spore-bearing part) 45—50 x5 μ, with a slender, thread-like base, 35 μ long; sporidia uniseriate, opaque, subinequilateral-elliptical, 6—7 x 3—3½ μ. The substance of the stroma is of a blue-black color, and a vertical section shows a radiate fibrous structure with one or two faint concentric zones. The interior of the stroma in *H. coccineum* is homogeneous in structure and of an even gray-black color. Shat species is also distinguished from this by its smaller stroma, roughened by the slightly projecting perithecia (⅛—½ mm. in diameter) and by larger asci and sporidia. In the Nebraska specimens the perithecia are distinctly prominent, but in other respects they do not differ from the normal form.

HYPOXYLON COMMUTATUM, Nitschke, var. HOLWAYANUM, S. & E.—Mich., II, p. 570; Sacc. Syll,, II, XXV, Addenda. On bark of dead oak, Decorah, Ia., and on bark of dead plum trees and (maple [?]), Vermilion Lake, Minn. (Holway). Stroma erumpent-superficial, solitary or subconfluent, subglobose, hemispherical or oblong, ¼—⅝ cm. across, dull purplish-red, becoming black, grayish-black within, roughened by the distinctly prominent, ovate, monostichous, ⅝ x ½ mm. perithecia; asci (spore-bearing part) 75—80 x 6—7 μ, with abundant paraphyses; sporidia uniseriate, opaque, inequilateral-elliptical, 10—12 x 4½—5½ μ. According to Saccardo, the perithecia are larger and more prominent than in the typical form, which is described by Nitschke as having the stroma pulvinate, depressed, rarely hemispherical or nearly globose, solitary or connate with globose, crowded, subdistichous peripheric perithecia and sporidia, 10—12 x 6 μ. The smaller stromata resemble those of *H. fuscum*, from which it is distinguished by its smaller sporidia. From *H. multiforme* it is distinguished by its larger, darker sporidia.

HYPOXYLON ENTEROMELUM (Schw.)—*Sphæria enteromela*, Schw., Journ. Acad. Philada., Vol. V, p. 10. Erumpent from cracks in the bark of dead chestnut trees, Bethlehem, Pa. (Schw.). Rather rare. Stromata pulvinate, often longitudinally confluent for 6 inches in length, rusty red, surface not granulated, variable in shape, subcompressed, very black (within), covered above with a furfuraceous, pulverulent, rust-colored bark. Immersed in the stroma are a few perithecia of larger size, the others being minute, peripheric, globose and black. The stroma stains the inner bark black. In the nature of the outer layer of the stroma this is allied to *H. coccineum*. Sec. Cooke in Grev., XI, p. 123, the sporidia are 10 x 4 μ.

HYPOXYLON VERA CRUCIS, Berk. & Cke.—Grev. XI, p. 129. On rotten wood, Vera Cruz (Salle). Subglobose, superficial, often confluent (1—2 cm. in diameter), bright rust color, sooty black within; perithecia of medium size, ovate, peripheric, somewhat prominent; asci cylindrical; sporidia elliptical, attenuated at each end, brown, 20 x 8 μ.

HYPOXYLON ARGILLACEUM (Pers.)—*Sphæria argillacea*, Pers. Syn., p. 10. On trunks of ash; more rarely on beech and birch. Bethlehem, Pa. (Schw.); Canada (Maclagan); on beech, N. Y. (Peck). Stromata erumpent-superficial, subglobose, solitary, rarely connate, clay color, becoming black within; perithecia in a single layer (monostichous), rarely irregularly polystichous, ovate, small, crowded, somewhat prominent, minutely mammillose; conidial layer white, becoming stag color or clay color; conidia small, ovate, hyaline on long, sparingly branched, septate sterigmata; asci cylindrical, with very long, slender pedicels, spore-bearing part 140 x 16 μ; paraphyses simple, thread-like, longer than the asci; sporidia uniseriate, broad ovate, elliptical or subinequilateral, obtuse, opaque, 18—22 x 9—10 μ (22—24 x 10—12 μ Sacc. in Syll.) This species, of which we have seen no specimens except those sent from England by Dr. Plowright, seems to be easily recognized by its clay-colored stroma and large sporidia.

HYPOXYLON NOTATUM, B. & C.—Grev. IV, p. 50. On bark of *Celtis*. Carolina (Ravenel); on *Viburnum*, Pennsylvania (Michener). "Perithecia few, rather large, crowded into a little pulvinate mass clothed with rubiginous powder; ostiola at length prominent, truncate, with a central perforation. The sporidia, which are shortly cymbæform, vary a little in size."

In the specimens in Rav. Fungi Car. Exsicc., IV, No. 36 (the only ones we have seen) the little pulvinate erumpent masses (stromata) are 1—2 mm. across, each containing 2—6 perithecia having thick coriaceous walls and about ½ mm. in diameter. The asci are surrounded by abundant paraphyses and have the spore-bearing part 55—60 x 8 μ. Sporidia uniseriate, short cymbiform, opaque, 12—14 x 8 μ, as noted by Cke. in Grevillea XI, p. 123. The interior of the stroma shows a slight yellowish tint, like that of *H. Sassafras*, Schw., but not as distinct. The substance of the stroma is quite soft, almost carnose.

HYPOXYLON FUSCUM (Pers.)—Syn., p. 12. On dead alder, birch, hazel, beech and other deciduous trees. Common throughout the United States and Canada. Stroma erumpent-superficial, solitary or subconnate, depressed-pulvinate, or hemispherical, generally 1—3 mm. diameter, dark purplish-red, finally black, somewhat uneven from the slightly projecting, small, closely packed, irregularly monostichous; subglobose perithecia with minute mammiliform ostiola; conidia very minute, borne singly at the extremities of short, sparingly branched sterigmata; asci cylindrical on long pedicels, spore-bearing part 80—90 x 7—8 μ; paraphyses filiform; sporidia uniseriate, subinequilateral-elliptical, opaque and, in the specimens examined, 11—14 x 5—6 μ (12—16 x 5—7 μ, Sacc.)

HYPOXYLON BOTRYS. Nitsch.—Pyr. Germ., p. 34. On bark of dead willow tree, Pointe a' la Hache, La. Rev. A. B. Langlois, No. 376. Stromata erumpent, aggregated and subconnate or oftener tuberculiform, 1—2 mm. in diameter, consisting of simple aggregations of perithecia

with very little stromatic material interposed, golden yellow at first, finally black, about ½ mm. in diameter, about ¼ of the upper part of the perithecia projecting; asci cylindrical, 8-spored with filiform paraphyses; sporidia uniseriate, narrow-elliptical, brown, mostly 2-nucleate, 12—14 x 5—7 μ. The inner substance of the bark under the stroma is whitened. We have no authentic specimens of this species, but the Louisiana specimens agree so well with the description of *H. botrys*, Nits., that we have little hesitation in referring them to it.

HYPOXYLON BICOLOR, E. & E.—JOURN. MYCOL., II, p. 88. On dead limbs of *Quercus virens*, Pointe 'a la Hache, La. Rev. A. B. Langlois, No. 344. Stroma tubercular-hemispherical, about 2 mm. across, scattered, somewhat uneven from the slightly prominent perithecia, dull ferruginous-purple, becoming darker, within yellow, becoming darker with age; ostiola impressed, punctiform; perithecia subperipheric, closely packed, about ¼ mm. in diameter; asci narrow-cylindrical, with a slender base, about 100 x 6 μ; sporidia in a single series, narrow-elliptical or subnavicular, pale yellowish at first, then opaque, 1—2-nucleate, 9—12x3½—4½ μ, ends subacute. Allied to *H. fuscum* but differs in its impressed ostiola and smaller stroma, yellow inside.

NOTE.—Sec. Cooke, in Grev., XI, p. 127, *Hypoxylon bicolor*, B. & C., is a *Diatrype*.

b. Stroma externally black.

HYPOXYLON MULTIFORME, Fr.—On dead birch. N. H (Farlow); N. Y. (O. F. Cook); Mich. (Miss Minns); Minnesota (Holway); Canada (Macoun). *Alnus*, *Sorbus*, *Quercus* and *Castanea* are also given as habitats of this species. Stroma erumpent and often margined by the ruptured bark of various shapes but on birch usually transversely elongated, oblong or elliptical, somewhat flattened above, 1—1½ cm. long by ½—¾ cm. wide or by confluence 4 or more cm. long, dull rusty red at first, finally black and smooth; perithecia irregularly monostichous, rather large, globose, distinctly prominent with papilliform ostiola; conidial layer dirty yellowish, becoming darker, conidia very small, obovate; asci cylindrical, on long pedicels, spore-bearing part 70—90 x 6 μ; paraphyses slender, simple, longer than the asci; sporidia uniseriate, inequilateral-oblong, pale brown, 9—10½ x 3½ μ (10—12 x 4—5 μ, Sacc.)

Specimens on *Alnus* sent from British Columbia by Dr. Macoun have the stroma depressed-hemispheric, 1—½ cm. across and the perithecia less prominent, but the asci and sporidia are the same.

This is a widely-diffused species, being found throughout Europe, also in Kamtschatka and the elevated region of Nepal in central Asia. Its range appears to be northward. It is generally found on limbs from which the bark has not yet fallen, but is also said to grow on decorticated limbs and is then more effused. The specimens we have seen of this effused form seem rather to belong to *H. rubiginosum*.

HYPOXYLON TERES, Schw.—Syn. N. Am., No. 1178. On bark. Locality unknown. "Pulvinate, subterete-cylindrical, apex obtuse, rounded, surface tuberculose-undulate, rust-colored; stroma sooty black, surrounded and roughened by the immersed peripheric perithecia. The cylindrical, pulvinulate, scattered stromata are about three lines high and 1½ lines thick. In some respects allied to *H. rubiginosum*."

HYPOXYLON MALLEOLUS, B. & Rav.—Grev., IV, p. 49. On oak trees. Carolina (Ravenel); Florida (Dr. Martin, Calkins and Rau.) Stroma globose, sessile, 1½ cm. in diameter, black, ornamented by the papillose ostiola, each sunk in a shallow, circular depression about ½ mm. across. A vertical section of the stroma shows the same radiate-fibrous, subzonate structure and shining black color seen in *H. Howeianum*. Perithecia peripheric, oval or elliptical in outline, forming a layer about 1 mm. thick, which readily separates from the inner mass of the stroma. The asci (which appear to be evanescent) have, in our specimens, disappeared, but there is an abundance of brown, fusoid, nearly straight sporidia, 18—22 x 3—3½ μ, ends subobtuse.

HYPOXYLON COHÆRENS, (Pers.) Syn., p. 11. On bark of beech. Carolina (Ravenel); N. Y. (O. F. Cook); Penna. (Rau.) Stromata erumpent-superficial, depressed-globose, about 2 mm. in diameter, continuously connate over a space of three or more centimeters across, of a dirty black color; perithecia mostly only 6—10 in a stroma, rather large and distinctly prominent, with papilliform ostiola; asci cylindrical, spore-bearing part about 22 x 6 μ; sporidia uniseriate, short-navicular, brown, 9—11 x 4—5 μ (12 x 6 μ, Sacc.) The foregoing description is from the specimens in Rav. Car., III, No. 48. The conidial hymenium which clothes the young stromata is of a pale clay color, becoming cinereous; conidia obovate-subglobose, very small. The species is widely diffused and is found also on oak, *Nyssa* and maple. A small form, var. *minor*, is mentioned on decaying *Polyporus* in Borneo. In the old and blackened state, this species resembles outwardly some forms of *H. coccineum*, Bull., from which it differs in its smaller connate stromata and larger perithecia and in the different color of the young stroma.

HYPOXYLON MURRAYI, B. & C.—Grev., l. c. On dead bark. Massachusetts (Murray). "Gregarious, subglobose, a line or more broad, black without and within, densely papillose with the minute ostiola. It resembles externally *H. bomba*, Mont., except the densely papillose surface." Sporidia sec. Cke. in Grev., XI, p. 123, 13—15 x 5—7 μ.

HYPOXYLON GLOMIFORME, B. & C.—Grev., l. c. On bark of *Quercus nigra*, Connecticut (Wright). "Gregarious, hemispherical, nearly ¼ inch wide, at first clothed with ferruginous powder, then black and shining, even; perithecia hidden without any external trace of ostiola; stroma dark brown." Sporidia sec. Cke., Grev., l. c., 14—15 x 3½ μ.

HYPOXYLON TURBINULATUM, Schw.—Syn. N. Am. On beech wood, Mt. Pocono, Pa. (Schweinitz). "Turbinate-pulvinate, applanate, subcon-

fluent, but with the stromata (pulvinuli) always distinct; perithecia larger than usual, not peripheric but scattered through the entire stroma even to the base; external surface granulated, pulverulent, rugose with the minute, rather prominent ostiola; stroma scanty, dirty whitish; clusters of perithecia arranged in a seriate manner so as to bear some resemblance to Hebrew letters and seated on a black crust which overspreads the bark." Sporidia sec. Cooke, 12 x 3½ μ.

NEW SPECIES OF FUNGI FROM VARIOUS LOCALITIES.

BY J. B. ELLIS AND B. M. EVERHART.

Septoria Saniculæ, E. & E.—On living leaves of *Sanicula Marilandica*. Racine, Wis., November, 1887, Dr. J. J. Davis. Leaf mottled with small, irregular, subindefinite, brown spots, enclosing still smaller (½—1 millim.), white spots, on each of which are 1—3 minute, black perithecia; sporules spiculiform, slightly curved, about 20 x 1 μ or less.

Septoria Nepetæ, E. & E.—On living leaves of *Nepeta Cataria*. Racine, Wis., June, 1887, Dr. J. J. Davis. Spots purplish-brown, with reddish or purplish border, rather irregular in outline, about two millim. in diameter, with a white center; perithecia mostly epiphyllous, lenticular, not very abundant; sporules nearly straight, nucleolate, 30—40 x 1½ μ.

Septoria asclepiadicola, E. & E.—On living leaves of *Asclepias incarnata*. Power's Lake, Kenosha county, Wis., June, 1887, Dr. J. J. Davis. Spots amphigenous, small (1—2 millim.), round, dull white, with a narrow, dark, distinctly-raised border, around which the leaf is stained purplish-red. The spots are often clustered together, 3—4 lying in contact with a common, raised border surrounding the whole; sporules linear-fusoid, nucleate, hyaline, 25—50 x 2—2½ μ, ends mostly acute and one end generally a little thicker.

Helminthosporium hadotrichoides, E. & E.—On living but partly dead leaves of *Erigrostis major*. Faulkland, Del., September, 1887, A. Commons, No. 347. On elongated, white spots, or on dead tips of the leaves, mostly epiphyllous; hyphæ loosely tufted, erect, smoky-brown, continuous or with 1—2 septa, 30—35 x 6—7 μ, the apex swollen so as to form a knob like the head of a pestle, 8—12 μ in diameter. The hyphæ are finally proliferous, the axis of growth being prolonged by one side of the swollen head or tip, thus forming a series (2—4) of offsets or steps. The conidia are clavate-obovate or clavate-cylindrical, yellowish-brown.

Helminthosporium subolivaceum, E. & E.—On dead bark of *Acer rubrum*, Clyde, N. Y., October, 1887. O. F. Cook. Subcæspitose in

cracks or openings in the bark made by some *Cytispora* or abortive *Valsa*. Hyphæ erect, septate, brown, equal, 100—120 x 3—4 μ; conidia subelliptical (terminal [?]), subhyaline at first, then brown and mostly 3-septate but scarcely constricted at the septa, subacute at each end with a short persistent pedicel at base, 30—40 x 10—14 μ.

ALTERNARIA LANCIPES, E. & E.—On living leaves of *Argemone platyceras*, Manhattan, Kansas, August, 1887. W. T. Swingle, 957. Hypophyllous, subolivaceo-velutinous, on round, black, concentrically wrinkled subindefinite spots 2—5 mm. in diameter; hyphæ short, erect, subfasciculate, pale olivaceous, soon becoming swollen in a nodulose manner above from the incipient conidia which are at first concatenate but soon deciduous, mostly 3-septate and strongly constricted at the septa, the lower cell narrowed to an acute point, the upper rounded and obtuse and at length one or more of the upper cells divided by a longitudinal septum. This seems to be well characterized by the wedge-like or lance-pointed base of the conidia. *Gloeosporium Argemonis*, E. & E., occurs on some of the spots.

BOTRYTIS GRISEO-LILACINA, E. & E.—On bark of dead oak trunks, Concordia, Mo., October, 1887. Rev. C. H. Demetrio. Prostrate sterile hyphæ brown, intricate, branched, coarse (3—4 μ in diameter), forming continuous grayish-lilac patches ½—2 cm. across, with a whitish, definite. minutely subfimbriate margin, fertile erect hyphæ pale, simple or sparingly branched and often subundulate above, forming subpulvinate tufts and bearing the subhyaline elliptical conidia (5—9 x 3—4 μ) at their tips. Apparently allied to *B. lilacina*, Schw.

FUSARIUM HYDNICOLUM, E. & E.—Parasitic on *Hydnum membranaceum*, Bull., growing on bark of dead oak, Concordia, Mo., October, 1887. Rev. C. H. Demetrio. Enveloping the teeth of the hydnum in a thin white mycelium ; conidia minute, subglobose, 2—2½ μ or elliptical, 2-nucleate, 3—5 x 2—2½ μ. Belongs in Saccardo's Sect. *Leptosporium*.

FUSARIUM BARBATUM, E. & E.—On *Usnea barbata*, Newfield, N. J., January, 1888. Sporodochia applanate, subconfluent, cinereous at first, then orange; hyphæ erect. simple, hyaline, continuous or faintly septate, attenuated above, 20—25 x 2½ μ at the base, bearing at their tips the pyriform, hyaline, continuous, 4—6 x 2—2½ μ conidia. Belongs in Sect. *Leptosporium*, Sacc.

STAGONOSPORA SEPTORIOIDES, E. & E.—On dead leaves of *Quercus imbricaria*, Starkville, Miss., November, 1887. S. M. Tracy. Perithecia innate-erumpent, small, hypophyllous ; sporules cylindrical, subhyaline, 3--9 septate, 15—25 x 4 μ, oozing out and staining the leaf around the perithecia.

MELASMIA GLEDITSCHIÆ, E. & E.—On living leaves of *Gleditschia triacanthos*, Concordia, Mo., October, 1887. Rev. C. H. Demetrio. Peri-

thecia hypophyllous, flattened, rugulose, ½—1 mm. in diameter, thickly scattered over the part of the leaf occupied, which turns dark brown; sporules oblong, hyaline, 3—5 x 1—1¼ μ, continuous, borne on densely fasciculate basidia 10—12 μ long. Found also in Louisiana by Rev. A. B. Langlois and at Manhattan, Kansas, by Kellerman & Swingle (No. 1206).

STILBUM CAPILLARE, E. & E.—Parasitic on *Trichia varia*, Jamesville, N. Y., October, 1887. O. F. Cook. Stem capillary, white, smooth, ½—¾ mm. high, 20—25 μ thick, head ovoid, with a slight tinge of flesh color, about 75 μ in diameter; conidia oblong-elliptical, 3—4 x ¾ μ, 2-nucleate, hyaline. Outwardly resembling very closely *S. aciculosum*, E. & E., but differs in its smooth stem, smaller, paler head and much larger conidia. *S. aciculosum* has the stem glandular-tomentose and head distinctly flesh color.

RAMULARIA CREPIDIS, E. & E.—On leaves of *Crepis glauca*, Raton, New Mexico, June, 1886. Prof. S. M. Tracy. Amphigenous on orbicular, subconcentrically wrinkled, pale spots ¼—¾ cm. in diameter, with a brown margin; hyphæ cæspitose, erect, rigid, nearly straight, subattenuated and sparingly toothed above, 25—35 x 4—5 μ, continuous; conidia variable, acute, elliptical, 12 x 5—6 μ, or fusoid, cylindrical or oblong, 20—35 x 5—8 μ, hyaline, finally 1-septate. The *Ramularia* occupies the light-colored center of the spots, the remaining areas of which are thickly covered with small, black, erumpent perithecia which in the specimens seen were yet filled with granular matter.

PESTALOZZIA MICROSPORA, E. & E.—On fallen leaves of *Quercus coccinia*, Newfield, N. J., March, 1882. Acervuli amphigenous but more abundant below, prominent, black, thickly scattered over the leaf but without any definite spots; conidia narrow-elliptical, 3-septate, pale brown except the small terminal hyaline cells, colored portion about 7—9 x 4 μ, terminal bristle 10—12 μ long, basidia slender, 20—25 μ long. Quite distinct from *P. monochæta*, Desm., in its smaller, paler, 3-septate conidia and in the absence of any spots.

PESTALOZZIA PALLIDA, E. & E.—On fallen leaves of *Quercus alba*, Ohio, June, 1883. Dr. W. A. Kellerman, No. 258. Acervuli mostly hypophyllous, scattered without definite spots, erumpent, discoid, 75—150 μ in diameter; conidia fusoid, 4-septate, the three inner cells yellowish-hyaline, the two terminal ones quite hyaline and acute, the upper one prolonged into a short (6—9 μ) curved bristle; basidia 10—12 μ long, sometimes branching below. The septa project or stand out on the body of the spore like hoops on a barrel. The conidia are about 3 μ thick and 12 μ long between the extreme septa. Well characterized by its pale, banded conidia.

NEW LITERATURE.

BY W. A. KELLERMAN.

"MONOGRAFIA DEI GENERI PLEOSPORA, CLATHROSPORA E PYRENOPHORA (CONTINUAZIONE)." Di Augusto Napoleone Berlese. Nuovo Giornale Botanico Italiano. 7 Aprile, 1888.

"DU PARASITISME DE LA TRUFFE (SUITE)" par Henri Bonnet. Revue Mycologique, Avril, 1888.

"DIAGNOSES FUNGORUM NONNULLORUM NOVORUM IN FENNIA DETECTORUM." Auctore P. A. Karsten. l. c.

"MONSTMOSITES DANS LES CHAMPIGNONS," par William Phillips. l. c.

"FUNGI EXSICCATI PRECIPUE GALLICI." Centurie, XLVe. C. Roumeguere.

"THE DISCOMYCETES OF THE BIRMINGHAM DISTRICT." By W. B. Grove, B. A. The Midland Naturalist, April, 1888.

"REVISION OF SCOTCH SPHÆROPSIDEÆ AND MELANCONIEÆ, CONTINUED." By Prof. J. W. H. Trail. The Scotch Naturalist, April, 1888.

"MYKOLOGISCHES AUS DEM SCHWARZWALD," von G. Lagerheim. Mitteilungen des Botanischen Vereins Baden, 1888, No. 45.

"UEBER EINE NEUE PERONOSPORA-ART (P. LAPPONICÆ) AUS SCHWEIDISCH-LAPPLAND." Af Lagerheim. Afddag ur Botaniska Notiser, 1888.

"STUDIER ŒFVER SVAMPSLÆGTET TAPHRINA." Af C. J. Johanson. Stockholm, 1887. Pp. 1-28, 1 plate (eight species figured).

"DIE PILZE DER OBSTGEWACHSE—NAMENTLICHES VERZEICHNISS ALLER BISHER BEKAMET GEWORDENEN UND BESCHRIEBENEN PILZARTEN, WELCHE AUF UNSEREN OBSTRÆUCHERN UND KRAUTARTIGEN OBSTPFLANZEN VORKEMMEN," von Felix von Thuemen. Wien, 1887, pp. 1-126.

"BULLETIN FROM THE BOTANICAL DEPARTMENT OF THE STATE AGRICULTURAL COLLEGE, AMES, IOWA." Byron D. Halsted, Sc. D. professor of Botany, 1888, pp. 1-118.

The mycological articles contained in this bulletin are "Germination of Ergot of Wild Barley," "Relation of Rusts of Juneberry and Dwarf Juniper," "Notes upon the Ustilagineæ," "Triple-celled Teleutospores of Puccinia Tanaceti, DC.," "Downy Mildews in a dry season," "Provisional List of Provisional Species of Fungi" and "California Parasitic Fungi." The following are the new species described:

Cercospora anomala, Ellis & Halsted. On leaves of *Actinomeris squarrosa*, Iowa.

Cercospora lateritia, Ell. & Halsted. On leaves of *Sambucus racemosa*, Iowa.

Cercospora Lycii, Ell. & Halsted. On leaves of *Lycium vulgare*, Iowa.

Cercospora Oxybaphi, Ell. & Halsted. On *Oxybaphus nyctagineus*, Ia.

Cylindrosporium Iridis, Ell. & Halsted. On living leaves of *Iris versicolor*, Iowa.

Phoma Virginiana, Ell. & Halsted. On *Prunus Virginiana*, Iowa.

Septoria Rudbeckiæ, Ell. & Halsted. On *Rudbeckia triloba* and *R. laciniata*, Iowa.

Vermicularia sanguinea, Ell. & Halsted. On living leaves of some introduced *Panicum*, Iowa.

Uromyces digitatus, Halsted. On leaves of *Leersia Virginica*.

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NEW SPECIES OF FUNGI FROM VARIOUS LOCALITIES.

BY J. B. ELLIS AND B. M. EVERHART.

(Continued from page 46.)

SEPTORIA THALICTRI, E. & E.—On *Thalictrum purpurascens*, Manhattan, Ks., June, 1887. Kellerman & Swingle, No. 1188. Spots amphigenous, scattered, suborbicular, dull purplish-brown, becoming dirty white with a dark margin, 2—4 mm. diam.; perithecia very minute, innate, scattered, pale (about the same color as the dirty white center of the spots) and only seen by holding the leaf between the eye and the light; sporules filiform, continuous, nearly straight, 35—55 x 1—1¼ μ (*). This may be generically connected with *Spherella Thalictri*, E. & E.

PHLEOSPORA CARICIS, E. & E.—On living leaves of *Carex angustata*, Faulkland, Del., October, 1886. A. Commons, No. 446. On round, dirty white spots, 1—2 mm. in diameter, around which the leaf is stained rusty brown; perithecia sunk in the substance of the leaf and visible on both sides, rudimentary, small, black, one or several on a spot; sporules fusoid-oblong, hyaline, 4—7-septate, 40—60 x 12—14 μ. Found also at Columbia, Mo., on leaves of *Cyperus* by Howard Dorsett, No. 24 (in part). In the Missouri specimens, the spots are wanting, the leaf being entirely dead, but there is no other difference. On the same leaves (*Cyperus*) was also found *Septoria lineolata*, Sacc. & Speg., sporules 50—80 x 2 μ, nucleate and finally 4—6-septate. Evidently the same as Saccardo's specimens in M. V., though in his the sporules show no septa. What answers accurately to the description of *Ascochyta teretiuscula*, Sacc. & Roum., also occupied on the same leaves.

CONIOTHYRIUM SALVIICOLUM, E. & E.—On old bleached and decorticated stems of *Salvia officinalis*, Newfield, N. J., May, 1884. Perithecia

* An examination of part of original specimens in our possession shows that the spores are mostly 38—48 x 1½—2 and that they are sometimes faintly 1-septate (Kellerman & Swingle).

erumpent-superficial, submembranaceous, black, ½ mm. in diameter, finally collapsing above; ostiolum papilliform; sporules subglobose, olivaceous, 3½—4 μ.

DOTHIORELLA DECORTICATA, E. & E.—On decorticated wood of poplar, Louisiana. Langlois, Nos., 632, 633 and 639. Perithecia erumpent, depressed above, more or less confluent or connate, forming small (1—2 mm.) subtuberculiform groups thickly scattered over the matrix or scattered singly and partly overrun and fringed with scanty mycelium of brown threads; sporules ovoid with a gelatinous (?) envelope, hyaline, 18—23 x 12—16 μ on stout basidia as long as the spores themselves.

STRUMELLA DEALBATA, E. & E.—On decaying wood, British Columbia. Prof. J. Macoun. Sporodochia occupying bleached areas on the surface of the wood, gregarious, erumpent, olive-black, tuberculiform, mostly flattened above, about 1 mm. in diameter and consisting of a mass of brown, roughish, subglobose conidia 6—8 μ in diameter, subcatenulate or variously attached, the lower ones borne on short rudimentary hyphæ or basidia.

AMEROSPORIUM ILICINUM, E. & E.—On living leaves of *Ilex decidua*, Plaquemines Co., La., June, 1886. Langlois, No. 654. Maculicolous; spots amphigenous, of irregular shape, 2—3 mm. in diameter, definite, mostly with a very narrow slightly raised border, around which is a narrow belt of purplish discoloration, quite thin and finally deciduous, white above, rusty white below; perithecia about 100 μ in diameter, sunk in the substance of the leaf, their bases slightly prominent below, open above with the margin sparsely fringed with short (20 μ), continuous, slightly incurved, black, bristle-like hairs which are finally deciduous when the perithecia seen from above appear like small pale black circles on the surface of the white spot; sporules oblong, 10—15 x 4—5 μ (mostly 12—14 x 4—4½ μ), hyaline, continuous. Accompanied by a *Macrosporium* and *Phyllosticta concomitans*, E. & E., on some of the spots but the *Phyllosticta* and the *Amerosporium* do not usually occur on the same spot.

AMEROSPORIUM MACROCHÆTA, E. & E.—On dead sheaths and leaves of *Rhyncospora macrostachya*, Pointe 'a la Hache, La., December, 1886. Rev. A. B. Langlois, No. 842. Perithecia scattered, superficial, about ⅓ mm. in diameter, hemispheric at first, at length open and shallow cup-shaped, with the margin sparingly fringed with stout, straight, obtuse, olivaceous hairs, continuous or sparingly septate, nearly opaque below, subhyaline or lighter above and 250—300 x 10—12 μ; conidia fusoid, pale olivaceous, 2—3-nucleate, 10—12 x 1½ μ, on slender basidia longer than the conidia.

AMEROSPORIUM SABALINUM, E. & E.—On dead leaves of *Sabal Palmetto*, Louisiana. Langlois, No. 676. Perithecia erumpent-superficial, cupuliform, 100—150 μ in diameter, fringed with a few spreading, straight, brown-black continuous hairs 15—20 x 6—7 μ; sporules fusoid-oblong, yellowish-hyaline, continuous, 5—8 x 1¼—1½ μ.

HARKNESSIA AFFINIS, E. & E.—On dead limbs of *Liquidamber styraciflua*, Plainfield, N. J., July, 1887. Geo. F. Meschutt. Pustules valsoid, multilocular, covered at first with a white disk which is soon perforated in the center and is soon reduced to a white ring around the apex of the pustule; sporules elliptical, opaque, 20—25 x 12—15 μ, with a hyaline pedicel about 25 μ long and mostly enlarged below and an apical, awl-like, hyaline appendage about as long as the pedicel. Distinguished from *H. caudata*, E. & E., principally by its larger sporules.

PESTALOZZIA KALMICOLA, E. & E.—On bleached dead tips of living leaves of *Kalmia latifolia*, Wilmington, Del., April, 1887. A. Commons, No. 481. Perithecia epiphyllous, minute, scattered on or near the living part of the leaf, arranged in subundulate, parallel, transverse lines; conidia pale brown, 4-septate, fusoid, 18—22 x 5—7 μ, with a small, terminal, hyaline cell, bearing three short (5—7 μ), spreading, weak bristles, which, when well developed, are thickened at their tips. The living part of the leaf is separated from the dead by a narrow purplish-red line. This species is allied to *P. decolorata*, Speg., but differs in its shorter, 4-septate conidia with shorter bristles.

PESTALOZZIA ADUSTA, E. & E.—On dead tips and margins of living leaves of cultivated plum trees, Newfield, N. J., July, 1887. Acervuli amphigenous, minute, scattered, prominent, sphæroid or subconic, black; conidia clavate-oblong, 4-septate, 12—15 x 5—6 μ (colored part), the three medial cells pale brown, terminal cells hyaline, the apical one bearing a crest of 2—3 spreading, hyaline bristles 8—12 μ long; the tips and margins of the leaves are of a light gray color and look as if scorched by fire.

PESTALOZZIA DISCOSIOIDES, E. & E.—On living leaves of cultivated roses, Faulkland, Del., August, 1887. A. Commons, No. 611. Maculicolous; spots dirty brown, about 1 cm. in diameter, suborbicular; perithecia epiphyllous, erumpent-superficial, mostly elongated, hysteriiform, ¼—½ mm. long; conidia oblong-fusoid, slightly curved, 3-septate, yellowish-hyaline, the intermediate cells only a little darker than the terminal ones, 12—15 x 2½—3 μ, with a short (3—5 μ) oblique bristle at the apex or often arising from one side of the apex; basidia slender, about as long as the conidia. This seems most nearly allied to *P. compta*, Sacc., but is distinct from that species in its subhyaline conidia with much shorter terminal bristle. *P. concentrica*, B. & Rav., and *P. hysteriiformis*, B. & C., which are hardly distinct differ in their larger perithecia and larger conidia, with their intermediate cells brown.

PESTALOZZIA CORNIFOLIA. E. & E.—On living leaves of *Cornus sericea*, St. Gabriel, La., September, 1886. Langlois, No. 506. On round, dusky brown spots 3—4 mm. in diameter, with a narrow, slightly-raised black border or line around which the leaf is slightly tinged with purple; perithecia punctiform, black, smooth, partly prominent, epiphyllous; spores oblong-elliptical, 4-septate, acute below, less distinctly so above and surmounted by a crest of three hyaline, spreading bristles 8—15 μ

long. The two terminal cells are hyaline, the others brown, sometimes almost opaque.

GLŒOSPORIUM APOCRYPTUM, E. & E.—On leaves of *Negundo aceroides*, Racine, Wis., July, 1887. Sent also from Kansas by Kell. & Swingle, September, 1887. Acervuli numerous, minute, mostly hypophyllous and on dead areas of the leaf but scattered more or less over the entire leaf. The spores, which are quite variable in size (5—12 x 2½—5 μ, oblong or narrow-elliptical), are discharged so copiously as to whiten the lower surface of the leaf.

GLOEOSPORIUM RUBI, E. & E.—On living leaves of *Rubus villosus* with *Cæoma nitens* (Schw.), Starkville, Miss., April 15, 1888. Prof. S. M. Tracy. Amphigenous on large, indefinite brown spots and areas of the leaf, partly overrun by the *Cæoma;* acervuli numerous, small; conidia oblong, continuous, hyaline, 10—16 x 4 μ, mostly rounded at the ends and straight, but some of them slightly curved and a little narrower at one end.

GLOEOSPORIUM EQUISETI, E. & E.—On living stems of *Equisetum lævigatum*, Braun., Grape Creek, Colo., July, 1887. Rev. C. H. Demetrio, No. 125. Acervuli large (1 mm. in diameter), subconfluent, covered by the blackened cuticle, which soon whitens out except around the margin; spores cylindrical, slightly curved, multinucleate, 25—35 x 3 μ, expelled in pale amber-colored masses.

GLOEOSPORIUM OPUNTIÆ, E. & E.—On dead *Opuntia Brasiliensis*, in a greenhouse, Perryville, Mo., January, 1886. Rev. C. H. Demetrio. Acervuli erumpent, scattered, rather large, at length pale, mass of spores amber-colored; spores oblong, obtuse, continuous, 13—18 x 4—4½ μ. After the disappearance of the spores the raised and ruptured epidermis resembles somewhat an old *Aecidium*.

CYLINDROSPORIUM HERACLEI, E. & E.—On leaves of *Heracleum lanatum* with *Phyllachora Heraclei* (Fr.), Ogden, Utah, August, 1887. Prof. S. M. Tracy. Spots pallid, then brown, subangular, limited by the veinlets but also confluent in irregular, more or less connected brown areas, which often extend along the margins of the leaf, turning it brown; acervuli innate, large, mostly erumpent above in light-colored masses as in *Gloeosporium;* conidia fasciculate, fusoid-cylindrical, granular and nucleate and some of them with the endochrome faintly divided in the middle, attenuated towards each end and strongly curved, 50—60 x 3—4 μ.

CYLINDROSPORIUM GERANII, E. & E.—On living leaves of *Geranium Carolinianum*, St. Martinsville, La., March, 1888. Rev. A. B. Langlois, No. 1157. Spots amphigenous, whitish with a dull reddish border 3—4 cm. across; acervuli minute, abundant, pale, erumpent on both sides of the leaf; conidia slender, 30—50 x 1½—2 μ, continuous, hyaline, arising from short (6—8 μ), subconical basidia (they can hardly be called hyphæ). The erumpent conidia form a white, pulverulent stratum as in the other species.

FUSICLADIUM ALOPECURI, E. & E.—On leaves of *Alopecurus geniculatus*, Columbia, Mo., May, 1887. B. T. Galloway, No. 267. Tufts compact, grayish, thickly scattered over the partly dead tips of the leaves; hyphæ smoky-hyaline, continuous, subtruncate and more or less shouldered and toothed above but otherwise nearly straight; conidia clavate-oblong, olivaceous, granular, continuous or with faint indications of a medial septum, 20—35 x 7—10 μ. Closely allied to *F. fasciculatum*, C. & E., but tufts more compact, hyphæ thicker and straighter and conidia larger; except the habitat, however, there is no serious objection to considering this a mere variety of that species.

FUSICLADIUM ASCYRINUM, E. & E.—On flower bracts and pedicels of *Ascyrum crux Andreæ*, Natchitoches, La., September, 1886. Langlois, No. 705. Hyphæ mostly at the base of the bracts, appearing like patches of black pubescence, which consists of closely crowded fascicles of erect, septate threads about 75 x 4 μ, nearly opaque below, subhyaline above and bearing at their tips the subhyaline, ovate-oblong, 2—3-nucleate, 16—20 x 4—6 μ conidia, either singly or 2—3 standing on the tip of the same thread or often attached to little tooth-like lateral projections near the tip of the thread. Sometimes the conidia are briefly catenulate.

MYSTROSPORIUM ERECTUM, E. & E.—On decaying stalks of *Zea Mays*, Pointe à la Hache, La., December, 1886. Rev. A. B. Langlois, No. 862. Forms a thin, continuous, sooty black, granular-looking coat on the matrix and is made up of straight, erect, septate, fuscous, (subhyaline above), fertile hyphæ, 35—40 μ long and 3—4 μ thick, each bearing an erect, terminal, obovate-elliptical conidium, 22—25 x 12—16 μ, nearly opaque and indistinctly cellular. More like the conidia of a *Sporidesmium* in which this might be placed only for the distinct, well developed fertile hyphæ.

SPORIDESMIUM FUMOSUM, E. & E.—On dead twigs of *Quercus alba*, Newfield, N. J., November, 1887. Forming a thin, smoky-black coating on the matrix which is overrun with brown branching toruloid threads whose free ends support the brown, cellular, subglobose, subcatenulate conidia 10—16 μ in diameter, often at first sarcinuliform, *i. e.* divided into four cells by two septa at right angles to each other.

CERCOSPORA LEUCOSTICTA, E. & E.—On leaves of *Melia Azedarach*, St. Martinsville, La., November, 1887. Rev. A. B. Langlois, 792. Spots small (1—2 mm.), white, scattered; hyphæ amphigenous, tufted on a tubercular base, yellowish-brown, continuous or faintly 1—3-septate, 40—50 x 4—5 μ, subundulate and shouldered above, with the obtuse tips often marked with 2 or 3 scars marking the points of attachment of the hyaline, obclavate, 5—10-septate, 60—80 x 3½—4½ μ conidia. Many of the spots are sterile, and on others only a few tufts of hyphæ are seen, but on the fertile spots (mostly the larger ones) the tufts are thickly scattered over the spots, except a narrow strip around the margin. This is readily distinguished from the other species on *Melia* by the small white spots.

CERCOSPORA SCUTELLARIÆ, E. & E.—On leaves of *Scutellaria versicolor*, Nutt., Concordia, Mo., October, 1886. Rev. C. H. Demetrio. Amphigenous; spots angular, limited by the veinlets (2—4 mm.), brown below, darker above where the leaf is tinged with purple and yellow; hyphæ forming small compact tufts, continuous, brown, simple, straight, 30—40 x 3 μ; conidia slender, 70—90 x 3 μ, multinucleate and with several indistinct septa.

MONILIA PENICELLATA, E. & E.—On rotten wood, Newfield, N. J. Sent also from Louisiana by Rev. A. B. Langlois (No. 782) and from the Adirondack Mts. by Dr. G. A. Rex. Effused or subcæspitose, orange red; sterile hyphæ prostrate, hyaline, overrunning the matrix like the threads of a spider's web and scarcely visible unless considerably magnified; fertile hyphæ erect, stout, simple or branching from the base, 100—200 x 25—40 μ, filled with orange-colored granular matter, not septate, bearing at their obtuse and slightly swollen tips recurved and more or less branching chains of orange-colored, large (25—60 x 20—40 μ) conidia of an acutely-elliptical shape when dry but with the ends obtuse when moist and then readily separating from each other and from the stipe-like base. Often the conidia arise directly from small gangliform thickenings of the prostrate threads and in this case are hardly concatenate or at least in series of only 2 or 3. This differs from the usual type of *Monilia* in its penicillate mode of growth.

ZYGODESMUS MEMBRANACEUS, E. & E.—On rotten wood, Ottawa, Canada. Dr. John Macoun. Light yellowish-white, the color becoming finally a little deeper; hyphæ pale, branching at a right angle or nearly so, 3—5 μ in diameter, with the zygodesmoid joints very distinct, compacted into a loose membrane; spores abundant, subglobose, 3 μ in diameter or subelliptical, 3 x 3½ μ, smooth and nearly hyaline. This species approaches *Corticium* in its submembranous character. It has much the same general appearance as *Corticium echinosporum*, Ell. (N. A. F., No. 608), but that has larger rough spores. It is not *Z. lævisporus*, Ck., for that has spores 10 μ in diameter and is really a *Rhinotrichum* closely allied to *R. Curtisii*, Berk., as near as we can judge from the specimens in Rav. F. Am. The same thing has been found in Florida by Mr. Calkins, No. 821. In old specimens the conidia adhere to each other so as to resemble one large rough spore, but placed in water they soon separate.

VERMICULARIA VELUTINA, E. & E.—On decaying herbaceous stems, St. Martinsville, La., January, 1888. Rev. A. B. Langlois, No. 1113. Densely gregarious; perithecia membranaceous, erumpent, depressed-hemispheric, 70—80 μ in diameter, thickly beset with straight, erect, slaty-black hairs 50—100 x 3—4 μ; sporules slightly arcuate, nearly hyaline, nucleolate, 18—22 x 3—3¼ μ, ends subacute. Recognized by its soft erect hairs, which give the stem a velvety appearance.

STICTIS PARASITICA, E. & E.—On old *Diatrype tremellophora*, Newfield, N. J., October, 1887. Erumpent, minute (one-sixth mm. in diam.), margin dirty white, fimbriate-dentate, expanding tardily; asci clavate-

cylindrical, substipitate, 25—30 x 5—6 μ, with abundant paraphyses; sporidia biseriate, oblong-elliptical, hyaline, continuous, 6—8 x 2½ μ. The stroma of the *Diatrype* and the adjacent bark is beset with erect, opaque, bristle-like hairs 250—300 μ long.

VOLUTELLA CONORUM, E. & E.—On fallen cones of *Magnolia glauca*, Newfield, N. J., August, 1887. Disk sphæroid and milk white at first (¼ mm.), finally plane, sessile, flesh color (½ mm.), surrounded by a fringe of slender (300—400 x 3—4 μ), white, continuous, smooth hairs which are gradually attenuated above; conidia oblong-fusoid, hyaline, continuous, 6—9 x 1½—2 μ, simple; conidia subglobose, hyaline, 1—1¼ μ, on continuous, straight, simple basidia 15—20 x 1—1¼ μ. Differs from *V. fusarioides*, Penzig, in its smaller, straight conidia.

VOLUTELLA CITRINA, E. & E.—On decaying pitchy wood of pine, Newfield, N. J., April, 1888. Sporodochia turbinate-lentiform, sessile, ½—1 mm. in diameter, margin laciniate-toothed, but the teeth not prolonged into hairs, their projecting points barely visible under the lens; basidia 12—15 x 1 μ, abundant. The general appearance is that of a *Helotium*, for which it was at first mistaken.

PEZIZA (CUPULARES) BRACHYPUS, E. & E.—On bare ground among oak bushes, Newfield, N. J., October, 1887. Shallow cup-shaped, regular, 2½ cm. across, pale chestnut color within, white and pruinose outside, stem short-cylindrical, 4 mm. long and thick, white, flesh of cup white, thin and brittle; asci 200 x 15—20 μ, cylindrical; paraphyses stout, thickened above, apices 6—10 μ thick; sporidia uniseriate, elliptical, 18—20 x 12—14 μ, epispore distinctly roughened when mature. Allied to *P. amplispora*, C. & P., but distinguished by its smaller rough sporidia, club-shaped paraphyses and very regular cup not at all rugulose below. The stem, though short, is very distinct and is not enlarged above but cylindrical and smooth (or at least not rugulose or lacunose). The outer cup does not present a smooth continuous membrane but is *innate* tomentose, *i. e.* as if the thin white flesh were composed of tomentum closely compressed and presenting an even though not a strictly continuous surface. The plant shrinks much in drying. There is some resemblance to *P. macropus*, Pers., but that has longer, narrower spores and a longer stem, not to mention other points of difference. Only a single specimen was found.

PEZIZA (DASYSC.) SOLENIÆFORMIS, E. & E.—On decaying wood, Cazenovia, N. Y., October, 1887. Underwood & Cook. Gregarious, brownish, briefly stipitate, hemispheric cup-shaped at first and almost closed by the incurved margin, then expanding to nearly plane, hairy outside and margin fringed with simple, septate, straight white hairs which are mostly a little roughened at the tip; disk dull white, inclining to yellowish or watery flesh color, ½—1 mm across; asci about 40 x 3—3½ μ, clavate-cylindrical, straight and overtopped by the rather obtusely-pointed, stout paraphyses; sporidia subbiseriate, clavate-oblong, hyaline, continuous, 5—8 x 2½ μ (exceptionally 10—12 μ long). The cups appear

sessile, but there is a distinct though short stipe just long enough to raise them fairly above the surface of the wood. When dry they are contracted and nearly closed. The marginal hairs are 70—80 μ long and about 3 μ thick and under the microscope are—at least their lower half—yellowish-brown. Substance quite soft. Since found in Ohio by Prof. Morgan.

PEZIZA (MOLLISIA) FAIRMANI, E. & E.—On inner surface of bark lying on the ground, Lyndonville, N. Y., April, 1888. Dr. C. E. Fairman. Centrally attached, sessile, gregarious, concave with the margin subincurved at first, then expanding to plane or slightly convex, ⅛—¾ mm. in diameter; disk livid, margin paler and like the outside of the receptacle clothed with short, hyaline, obtuse, glandular hairs, which become darker and more strongly developed towards the base; asci clavate-cylindrical, sessile, paraphysate, 35—40 x 5—6 μ; sporidia subbiseriate, ovate-elliptical, hyaline, continuous, lower end more acute, 3½—4½ x 2—2½ μ. When dry the disk is nearly closed by the incurved margin.

PEZIZA (MOLLISIA) GLAGOSA, E. & E. (Gr., *glagao.*)—On a fallen leaf not much decayed, in the swamp, Newfield, N. J., August 7, 1887. Minute (250—275 μ), round, sessile, smooth, milk white, becoming subrufous or amber color when dry; asci 70—75 x 7—8 μ, gradually attenuated to the base; paraphyses abundant, filiform, not distinctly thickened above; sporidia biseriate or crowded above, oblong or clavate-oblong, mostly a little curved, hyaline, with or without nuclei and some of them showing indications of one or two septa, 80—10 x 2½—3 μ.

PATELLARIA CENANGIICOLA, E. & E.—Parasitic on *Cenangium turgidum*, Schw., on living *Quercus coccinea*, Newfield, N. J., April 30, 1888. Sessile, subgregarious, patelliform, disk concave (when dry), dull olive green, margin acute, suberect, outside paler, about 1 mm. in diameter (¾—1¼ mm.); asci broad clavate-cylindrical, 75—80 x 12—15 μ; paraphyses indistinct; sporidia crowded, biseriate, subnavicular, clavate-fusoid, nearly hyaline, granular, becoming 1-septate, 30—40 x 7—9 μ.

HELOTIUM LACTEUM, E. & E.—On dead wood, Cazenovia, N. Y., October, 1887. Prof. L. M. Underwood and O. F. Cook, Jr. Gregarious, stipitate, tomentose, milk white throughout, head plano-convex, subimmarginate, minutely tomentose outside, about ½ mm. across; stem cylindrical, equal, short (150 μ high and thick), tomentose; asci cylindrical-clavate, 75 x 6—7 μ, with linear or filiform paraphyses; sporidia biseriate, fusoid, nucleate, slightly curved, ends acute, 15—17 x 2½—3 μ, hyaline.

HELOTIUM STRUMOSUM, E. & E.—On old *Dichæna strumosa*, Fr., Newfield, N. J., December, 1887. Gregarious, sessile, bright lemon yellow, closed and subspherical at first, then open, cup-shaped and finally expanding to nearly plane, one-sixth to one-third mm. in diameter, tomentose-pubescent outside and attached to the matrix by fine white

hairs at the base; asci clavate, 70–80 x 10—12 μ, paraphyses stout, yellowish, slightly thickened above; sporidia in the upper part of the asci, biseriate, elliptical or ovate-elliptical, granular and multinucleate at first, then 2—3-nucleate, with indications of a medial septum, 10—12 x 3—4½ μ. Substance soft carnose, margin acute.

MYTILINIDION JUNIPERI, E. & E.—On outer bark of living *Juniperus Virginiana*, Newfield, N. J., April, 1888. Perithecia gregarious, about one mm. long, acute at each end, valves closely compressed and longitudinally striate, subshining; asci about 100 x 7 μ, cylindrical, surrounded by abundant paraphyses; sporidia 1-seriate, oblong, brown, 3-septate, 12—15 x 4—5 μ.

NECTRIA POLYTHALAMA, Berk.—Specimens of this species have been found by Mr. Commons, in Delaware, on dead hickory limbs agreeing with the specimens in Rav. Car. except in the asci being 100—110 x 15 μ and sporidia 20—30 x 7—12 μ. The perithecia also are a little larger (½—¾ mm.) and only slightly collapsed. They burst through cracks in the bark in clusters of 3—30 and are of a dull red color, dusted with a yellowish powder. Ostiolum papilliform, blackish.

NECTRIA MISSOURIENSIS, E. & E.—On bark of dead *Carya alba*, near Concordia, Mo., March, 1888. Rev. C. H. Demetrio, No. 87. Perithecia cæspitose (6—20), on a small stromatic base, dark red, globose (¼—⅓ mm.) furfuraceous, with a strongly papilliform ostiolum; asci 100—120 x 15—20 μ, with abundant filiform, evanescent paraphyses; sporidia irregularly crowded, oblong-elliptical, straight or very slightly bulging on one side, yellowish-hyaline, muriform, 20—25 x 10—12 μ, ends subacute.

DIALONECTRIA PERFORATA, Ell. & Holw., in Geol. and Nat. Hist. Survey of Minn., Bull. No. 3, p. 33.—On a decaying *Agaricus*. Perithecia gregarious and subconfluent, one-sixth to one-fifth mm. in diameter, rough and pruinose-furfuraceous, pale at first, becoming orange-red, depressed-globose, ostiolum papilliform and collapsing when dry, so as to appear broadly perforated above; asci clavate-cylindrical, 75 x 7—8 μ, without paraphyses; sporidia obliquely uniseriate, elliptical or subovate, uniseptate, hyaline or with a faint tinge of rose color, 8—12 x 5—6 μ. This comes very near *N. vulpina*, Cke., and possibly may not be specifically distinct.

DIALONECTRIA SULFUREA, Ell. & Calkins.—Parasitic on old *Stereum rugosum*, Fr., near Jacksonville, Fla., January, 1886. W. W. Calkins, No. 816. Scattered on a thin farinose-tomentose, yellow subiculum extending for one or more cm.; perithecia ovate-conic, pruinose, yellow (nearly sulphur yellow), with a papillose ostiolum, one-eighth to one-sixth mm. in diameter. In the specimens thus far seen, the asci had disappeared, but there was an abundance of oblong or clavate-oblong, hyaline, 1-septate, 7—12 (mostly 8—9) x 2½—3½ μ sporidia, distinctly constricted at the septum, ends rounded or obtusely pointed.

HYPOCREA BICOLOR, E. & E.—On decaying log of *Ulmus fulva*, Manhattan, Ks., Jan., 1888. Kellerman & Swingle, No. 1160. Stromata gregarious or crowded, convex, suborbicular, dull cinereous becoming dull black, suborbicular, 2—4 mm. in diameter, surface mostly rugulose, centrally attached as in *H. Schweinitzii*, Fr., which when mature it much resembles; perithecia peripheric, globose, about $\frac{1}{3}$ mm. in diameter, buried in the stroma, which is of a dull white color within and has the surface minutely roughened by the punctiform ostiola; asci cylindrical, 70 x 5 μ; sporidia 1-seriate or crowded above, elliptical, continuous, smoky-brown, about 5 x $2\frac{1}{2}$ μ.

SPHÆROTHECA LEUCOTRICHA, E. & E.—On living twigs, Concordia, Mo., December, 1887. Rev. C. H. Demetrio. Mycelium white, thin, submembranaceous, persistent, composed of imperfectly developed, hyaline, branching threads and granular matter and bearing more or less abundantly pale-brown, elliptical. 1-septate conidia 5—8 x 4—5 μ; perithecia minute (75—80 μ), immersed in the mycelium; appendages mostly rudimentary or obsolete but sometimes well developed, 50—100 μ long, brown, paler towards the extremities; asci obovate, 75—80 x 50—60 μ; 8-spored; sporidia elliptical, subinæquilateral, granular, 22—30 x 12—15 μ. Readily distinguished by its thin, white, persistent, granular mycelium.

VALSA PALLIDA, E. & E.—On bark of dead *Salix*, South Butler, N. Y., December, 1887. O. F. Cook, Jr. Stromata subhemispherical and suborbicular, composed of the substance of the inner bark, which is changed to a dirty flesh color or dirty white, about 2 mm. in diameter and surrounded by a thin black wall which shows as a black circumscribing line on a horizontal section, closely aggregated and occupying extensive areas which are definitely limited, presenting much the same general appearance as *V. ambiens;* perithecia 4—8 in a stroma, rather small, with slender necks that barely pierce the dirty white, farinaceous disk with their broad, depressed-hemispheric, roughish, black and, when well developed, distinctly quadrisulcate-cleft ostiola; asci (p. sp.) 35—45 x 6—7 μ; sporidia biseriate, quite hyaline, slightly curved, continuous, 6—8 x $1\frac{1}{2}$—2 μ. The disk containing the ostiola is closely embraced by the cuticle which is perforated but not laciniately cleft and is raised into rather broad pustules by the underlying stroma. *V. verrucula*, Nits., seems to differ in its elongated ostiola and numerous perithecia.

FENESTELLA AMORPHA, E. & E.—On (decorticated [?]) hickory limb, Lyndonville, N. Y., March, 1888. Dr. Chas. E. Fairman. Perithecia flask-shaped, about 1 mm. high and $\frac{3}{4}$ mm. broad, black outside but the internal texture white, connate and subseriate, the short ($\frac{1}{2}$ mm.), cylindrical ostiola converging but not united in a disk; asci cylindrical, with a narrow base, 150—175 x 12—15 μ, with abundant filiform paraphyses; sporidia 1-seriate, oblong-elliptical, about 6-septate with a single longitudinal septum, dark brown, 20—25 x 10—12 μ; not constricted at the

septa. The specimens examined were apparently superficial, but it is probable that the fungus grew while the limb was still invested with the bark through longitudinal cracks in which the ostiola penetrated.

(To be continued.)

NEW LITERATURE.

BY W. A. KELLERMAN.

"FOURTEENTH ANNUAL REPORT OF THE NEW YORK STATE MUSEUM OF NATURAL HISTORY, FOR THE YEAR 1886." Report of the botanist. Chas. H. Peck, pp. 37-77.

The following new species are described: Collybia fuliginella, Peck; Clitopilus subvilis, Peck; Polyporus radiculosus, Peck; Hydnum subfuscum, Peck; H. carbonarium, Peck; Irpex ambiguus, Peck; Porothelium pupillatum, Peck; Hymenochæte tenuis, Peck; Phyllosticta Lycopersici, Peck, on L. esculentum; P. Caryæ, Peck, on C. alba; P. tumoricola, Peck, on Quercus alba; P. populina, Sacc., var. parva, Peck, on P. monilifera; P. spermoides, Peck, on Vitis riparia; P. faginea, Peck, on Fagus ferruginea; P. vagans, Peck, on Smilacina racemosa; P. fatiscens, Peck, on Nuphar advena; Phoma magnifructa, Peck, on Thuja occidentalis; P. Populi, Peck, on P. tremuloides; P. castanea, Peck, on C. vesca; Cytospora grandis, Peck, on dead bark of Rhus typhina; Haplosporella Pini, Peck, on dead bark of white pine; Diplodia Asparagi, Peck, on dead stems of asparagus; Staganospora Chenopodii, Peck, on Chenopodiumalbum; Septoria fusca, Peck, on Artemisia vulgaris; S. solidaginicola, Peck, on S. arguta; S. brevis, Peck, on Solidago Virgaurea, var. alpina; S. populicola, Peck, on P. balsamifera; Pilidium graminicola, Peck, on Calamagroutis Canadensis; Melanconium dimorphum, Peck, on Alnus viridis; Corynemum tumoricola, Peck, on Ulmus Americana; Ramularia Barbareæ, Peck, on B. vulgaris; Cladosporium brevipes, Peck, on living leaves of Quercus alba; Graphium Sorbi, Peck, on Pyrus Americana; Helotium episphæricum, Peck, on old Hypoxylon Morsei; Ascomyces letifer, Peck, on Acer spicatum; A. rubrobrunneus, Peck, on Quercus rubra; Valsa Thujæ, Peck, on T. occidentalis; Anthostoma Ellissii, Sacc., var. exudans, Peck, on dead bark of Alnus incana; Sphærella minutissima, Peck, on Alnus incana; S. alnicola, Peck, on A. viridis; S. Pontederiæ, Peck, on P. cordata; Diaporthe (Chorostate) farinosa, Peck, on Tilia Americana; Leptosphæria Asparagi, Peck, on asparagus; Pleospora Shepherdiæ, Peck, on S. Canadensis; Dothidella Alni, Peck, on A. viridis; Lophiotrema vestita, Peck. on Populus tremuloides and L. parasitica. Peck, on Hypoxylon Morsei.

"PUCCINIA MIRABILISSIMA," Tracy & Galloway. Botanical Gazette, May, 1888.

"PLANT DISEASES—USTILAGO SEGETUM IN OATS AND BARLEY." J. L. Jensen. The Gardener's Chronicle, May, 5, 1888.

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JOURNAL OF MYCOLOGY.

Vol. IV. MANHATTAN, KANSAS, JULY, 1888. No. 7.

NOTES ON WESTERN UREDINEÆ.

BY S. M. TRACY AND B. T. GALLOWAY.

CÆOMA RIBES-ALPINI, Wint. (*Uredo Jonesii*, Pk., Torrey Bulletin, XII, p. 36.) This species occurs in abundance on *Ribes aureum* in several of the western states and territories. but has not been observed by the writers east of Colorado. On comparing our material with authentic specimens of *Uredo Jonesii*, Pk., we find that they agree perfectly; and a further comparison of these forms with European specimens of *Cæoma ribes-alpini* reveals the fact that the so called *Uredo Jonesii* does not differ from the species last named. Von Thumen has distributed this species (*Mycotheca Universalis*, No. 1830) under the name *Cæoma ribesii*, Lk., but Winter (Rab. Krypt. Flora, p. 258) adopts the specific name given it by Persoon. It is probable that *Uredo rubicola*, C. & E. (Grev. VI, p. 86) is the same as *Cæoma ribes-alpini*, but as we have no specimens of the former we cannot assert positively that such is the case.(*) *Uredo Jonesii* was published in 1885, and *Uredo rubicola* in 1882, Winter's name thus having priority and being the one which should be adopted. Winter's description agrees very closely with our specimens on *Ribes aureum*.

PUCCINIA FLOSCULOSORUM, Wint. (*Puccinia balsamorrhiza*, Pk., Ellis, N. A. F., No. 1833; *Trichobasis balsamorrhiza*, Pk., Bot. Gaz., VI, p. 276.)—There does not seem to be any good reason for separating the form on *Balsamorrhiza* from *P. flosculosorum*, and we believe that Winter considers the two forms identical. The teleutospores were found in abundance during August on the leaves of *Balsamorrhiza sagittata*, near Ogden and at other points in Utah. In our specimens the teleutosori are quite large and conspicuous and occur on both sides of the leaf. The spores are broadly elliptical, punctiform, 18—25 x 30—45 μ; pedicels hyaline, very fragile.

MELAMPSORA LINI, Wint.—Rab. Krypt. Flora, p. 246. The uredo stage of this species was taken at Flagstaff, Arizona, on *Linum perenne*, and on July 29th was found in great abundance on some host at Elko,

* Since writing the foregoing we have learned from Mr. Ellis that *Uredo rubicola*, C. & E., does not differ from *Uredo Jonesii*, Pk.—T. & G.

Nev. The pale yellow sori are roundish or somewhat elongated, mostly in groups; spores broadly elliptical or oblong, echinulated, 15—18 x 18—25 μ.

CHRYSOMYXA ALBIDA, Kuhn.—Rab. Fungi Europæa, No. 3015 (*Coleosporium rubi*, Ellis & Holway, N. A. F., No. 1878.) This species has been taken by the writers in Missouri and Wisconsin. It occurs abundantly on the lower surface of the leaves of *Rubus occidentalis*, forming conspicuous pale yellow sori late in autumn. Ellis & Holway's specimens were collected in Delaware in 1886 and distributed in N. A. F. the following year under the name *Coleosporium rubi*. *Chrysomixa alba*, Kuhn., which occurs in Europe on *Rubus fructicosus*, does not seem to differ from *Coleosporium rubi*, E. & H., and as the former name has priority it is the one that should be used. It may be well to add, however, that if this is *Chrysomyxa*, it is difficult to distinguish it from *Coleosporium*.

NEW SPECIES OF FUNGI FROM VARIOUS LOCALITIES.

BY J. B. ELLIS AND B. M. EVERHART.

(Continued from page 59.)

DIATRYPELLA TOCCIÆANA, De Not, var. SUBEFFUSA, E. & E.—On bark of dead alder, Massachusetts. Rev. Jos. Blake. Stroma pulvinate, flattish-convex, ½—1 cm. across or by confluence even more than that, dirty white within, covered permanently by the epidermis which is pierced by numerous small fascicles of the stellate-cleft, slightly prominent ostiola; perithecia numerous, 50—100 or more in a stroma, globose, rather large, reaching even one mm. in diameter, with thick membranaceous walls and short necks; asci clavate-cylindrical, 150x10—12 μ (p. sp. 80—90 μ), polysporous; sporidia yellowish in the mass, allantoid, hyaline, slightly curved, 2-nucleate, 5—7 x 1—1¼ μ. Bears outwardly considerable resemblance to Saccardo's *Eutypa ludibunda*. This differs from the type in its subeffused, subconfluent stromata.

PARODIELLA RIGIDA, E. & E.—On dead leaves of *Pinus rigida*, still attached to limbs cut off about eighteen months ago, Newfield, N. J., April 26, 1888. Perithecia gregarious, superficial, depressed-spherical, roughish, without any prominent ostiolum, 100—120 μ in diameter, with a sparing, brown, creeping mycelium around the base; asci oblong, sessile, 60—70 x 12—15 μ, very evanescent; paraphyses (?); sporidia subbiseriate, ovate-oblong, brown, 1-septate and deeply constricted (the two cells sometimes separating), 15—20 x 7—9 μ; spermogonia similar, with hyaline oblong sporules 15—18 x 7—8 μ, with a large central nucleus.

PHYLLACHORA TRACYI, E. & E.—On dead leaves of *Distichlis maritima*, Oregon, 1887. Prof. S. M. Tracy, No. 1145. Ascigerous cavities minute (35 μ), subastomous, subglobose, of fine cellular texture, fused together in a thin stroma either continuous in patches extending nearly or quite across the leaf and reaching longitudinally for ¼—½ cm. or forming longitudinal series interrupted at frequent intervals and extending along the entire length of the leaf; asci subglobose, 15—20 μ in diameter; sporidia crowded, eight in an ascus, subelliptical or ovate-oblong, obtuse, hyaline, 1-septate, 8—12 x 5—6 μ. Has much the same appearance as *P. Aristidæ*, Schw. The asci resemble those of an *Asterina*.

BYSSOSPHÆRIA LUTEOBASIS, Ell.—Bull. Torr. Bot. Cl., VI. p. 134. This has lately (Nov. 4, 1887) been found again near the original locality on decaying, decorticated limbs of *Quercus coccinea* or perhaps *Q. rubra*, lying on the ground. The yellow mycelium which penetrates deeply into the rotten wood is very distinct and noticeable. The perithecia also, which are either seriately arranged or collected in compact groups of 6—10, are at first enveloped, except the black, broad, even or faintly radiate-sulcate ostiola, in a densely matted light yellow tomentum composed of smooth, branching, sterile hairs. The perithecia themselves are of medium size, ovate and either superficial or at least have their bases only slightly sunk in the wood or entirely buried in the matrix, their erumpent ostiola alone being visible. In this latter case the yellow tomentose coat is mostly wanting. The asci are long and narrow (80—100 x 5 μ), the spore-bearing part only about 35 μ long; sporidia biseriate, cylindrical, slightly curved, olive-brown, 8—10 x 1½—2 μ, 3—4-nucleate and at length uniseptate. The variety on rotten pine wood distributed in N. A. F., Cent. I, does not appear to be distinct.

BYSSOSPHÆRIA BARBICINCTA, E. & E.—Parasitic on old *Diatrype tremellophora* and on the bark adjacent. On Magnolia, Newfield, N. J., October, 1887. Perithecia scattered, depressed-globose, about ¼ mm. in diameter, with a distinct black and shining papilliform ostiolum; asci narrow clavate-cylindrical, about 75 x 6 μ, with abundant paraphyses; sporidia biseriate, oblong, 3—4-nucleate, hyaline, 9—12 x 2½—3 μ, ends subobtuse. The matrix is thinly clothed with erect, opaque, bristle-like hairs 250 μ or more long, but the perithecia are mostly bald. It is possible that the hairy growth on the matrix is only accidental and in that case this species can hardly be distsnct from *Sphæria ostioloidea*, Cke.

TEICHOSPORA PYGMÆA, E. & E.—On bark of cottonwood (poplar), Kansas. Com. Dr. J. W. Eckfeldt. Perithecia solitary, scattered, erumpent-superficial, subhemispheric, black, 200—225 μ in diameter, pierced above, with a few brown, short (mycelioid [?]) threads around the base; asci oblong-cylindrical, subsessile, about 80 x 18—20 μ, with indistinct paraphyses; sporidia biseriate, pale yellowish-brown, ovate-elliptical, 3-septate, constricted at the middle septum, finally about 6-septate with one or two of the broader cells divided by a longitudinal septum. The

ostiolum is at first very minutely papilliform but soon disappears, leaving the perithecia minutely perforated. This seems nearest allied to *T. pruniformis* (Nyl.), but is smaller in all its parts and lacks the conoid-acute ostiolum.

LOPHIOSTOMA EXCIPULIFORME, Fr., var. ABIETIS, E. & E.—On *Abies*; Cazenovia, N. Y., October, 1887. Prof. L. M. Underwood and O. F. Cook. Differs from the forms on bark of deciduous trees in its larger (60—75 x 12—16 μ) sporidia and its rather narrower ostiolum.

LOPHIOSTOMA MONTANIENSE, E. & E.—On dead stems of *Clematis ligustifolia*, Montana, February, 1888. F. W. Anderson, No. 134. Perithecia scattered or subseriate, erumpent-superficial, hemispherical, ½—¾ cm. in diameter, rough, with a tuberculiform ostiolum pierced with a slightly elongated opening; asci cylindrical, 100—112 x 7—8 μ (p. sp.) with filiform paraphyses; sporidia uniseriate, elliptical, very slightly curved, constricted in the middle, 3-septate, the two middle cells brown, the terminal ones hyaline and bearing a straight, hyaline bristle 6—8 μ long. The sporidia resemble those of a *Pestalozzia*.

LOPHIOSTOMA PRUNI, E. & E.—On *Prunus serotina*, Lyndonville, N. Y., April, 1888. Dr. C. E. Fairman. Gregarious; perithecia sunk in the wood, ½—⅔ mm. in diameter; ostiola erumpent through the bark and strongly compressed; asci clavate-cylindrical, 80—90 x 8—9 μ, with abundant paraphyses; sporidia uniseriate, mostly four in an ascus, oblong, rounded at the ends, brown, 3-septate and constricted at the septa, a little narrower at the lower end, 18—22 x 6—8 μ. This can hardly be *L. acervatum*, Karst., which has the perithecia erumpent in small clusters (cæspites minutos) and sporidia scarcely constricted.

PLEOSPORA LACTUCICOLA, E. & E.—On decaying stems of *Lactuca Canadensis*, Newfield, N. J., June, 1878. Perithecia scattered, suberumpent, depressed-hemispheric, 175—200 μ in diameter; ostiolum papilliform; asci clavate-cylindrical, 90—100 x 10—12 μ; sporidia obliquely 1-seriate or rarely subbiseriate above, oblong, slightly constricted, 3-septate with each of the middle cells divided by a longitudinal septum, ends subacute and suboblique, 14—16 x 6—7 μ. Allied to *P. Bardanæ*, Niessl., but compared with the specimens of that species in Linhart's Fungi Hungarici, No. 168, the perithecia are smaller and the sporidia also smaller and darker colored. *Sphæria Lactucarum*, Schw., is said to grow in cinereous spots.

LEPTOSPHÆRIA TINI, E. & E.—On leaves of *Viburnum Tinus*, Lafayette, La., December, 1887. Rev. A. B. Langlois, No. 1143 (in part). Maculicolous and amphigenous on large cinereous spots, with a narrow reddish-purple border. These spots or dead places often occupy the margin along one side or the apex of the leaf, 2—3 cm. in diameter; perithecia punctiform, minute, innate, the black, subacute apex alone being visible; asci oblong-cylindrical, subsessile, with filiform paraphyses, 40—50 x 7 μ; sporidia biseriate, fusoid, yellowish, slightly curved, faintly 3-septate, 14—16 x 3 μ.

CŒLOSPHÆRIA FUSARIOSPORA, E. & E.—On bark of cottonwood. Coll. Dr. G. Egeling, com. Dr. J. W. Eckfeldt. Perithecia erumpent, depressed-hemispheric, collapsing to cup shape, black, one-sixth mm. in diameter; ostiolum papilliform; asci clavate-cylindrical, 50 x 7 μ; paraphyses filiform; sporidia biseriate, arcuate-fusiform, continuous, 18—22 x 2½ μ, ends acute. This is one of the species standing ambiguously between Lichens and Fungi.

SORDARIA (HYPOCOPRA) IOWANA, Ellis & Holway.—On horse dung, Decorah, Ia., May, 1886. E. W. D. Holway. Perithecia mostly densely gregarious, ovate, ⅓ mm. in diameter, the base sunk in the matrix (without any stroma), the upper half or three-fourths projecting, black, tuberculose-roughened, of coarse cellular structure and membranaceous; ostiolum tuberculose-mammose, short-cylindrical or conic-cylindrical, with a small round opening; asci cylindrical, about 100 μ long, with abundant, rather slender paraphyses; sporidia uniseriate, elliptical, yellowish at first, with a single large nucleus, becoming opaque when mature, ends rounded or obtusely pointed, but without appendages, quite uniformly 20 x 8 μ. Seems nearest to *S. scatigena*, B. & Br., but can not be called "hispid;" the surface is rough but there are no hairs.

SPHÆRELLA PHLOGINA, E. & E.—On dead leaves of *Phlox longifolia*, Belt Mts., Montana, June, 1885. F. W. Anderson, No. 142. Perithecia scattered, erumpent-superficial, conic-hemispheric, about one-sixth mm. in diameter, epiphyllous; asci ovate-oblong, 65—75 x 20—22 μ; paraphyses none; sporidia clavate-oblong, 1-septate and slightly constricted at the septum, rounded at the ends, yellowish-hyaline, with several small nuclei, 20—30 x 7—9 μ. Allied to *S. Stellarinearum* (Rabh.), but differs in its host plant, its more prominent perithecia and its straight, slightly constricted sporidia.

CAPNODIUM PUCCINIOIDES, E. & E.—On living leaves of *Frasera speciosa*, Pike's Peak, Colo., August, 1887. Prof. S. M. Tracy. Perithecia amphigenous, cylindrical, obtuse, 75—80 x 20 μ, hyaline, becoming opaque, erumpent in minute black tufts which are either scattered or collected in groups or patches 1—3 mm. across. In the central portion of these groups the leaf becomes dead and a whitish bare spot is formed, the margin of which is fringed with black border of perithecia, the whole presenting the general appearance of an effused *Puccinia*. The perithecia on the specimens examined were entirely sterile.

SPHÆRIA CACTI, Schw.—On *Opuntia Engelmanni*, Los Angeles, California. Com. Prof. F. L. Scribner. Perithecia gregarious, erumpent, subastomous, shining black, minute, mostly on round, yellowish-brown spots 3—4 mm. in diameter, with a definite, slightly raised border and often confluent; asci clavate-cylindrical, 40 x 10 (p. sp.) with a short, slender, pedicellate base; paraphyses not seen; sporidia biseriate, elliptical or obovate-elliptical, opaque with a light-colored band (pseudo-septum) across the middle, the lower end also subhyaline (and slightly appendiculate [?]), 12—15 x 4—4½ μ.

SYNOPSIS OF THE NORTH AMERICAN SPECIES OF HYPOXYLON AND NUMMULARIA.

BY J. B. ELLIS AND B. M. EVERHART.

(Continued from page 44.)

III. Clitoxylon. Stroma pulvinate, more or less convex, but not effused.

a. Stroma externally colored, not black.

HYPOXYLON XANTHOCREAS, B. & C.—Grev. IV, p. 51. New England (Sprague); (*H. Peckianum*, Sacc. Syll., I, p. 360). On *Alnus*, N. Y. (Peck). "At first distinct, pulvinate, then by confluence forming a mass half an inch broad, black, papillate from the projection of the minute perithecia; asci linear; sporidia uniseriate, elliptic,. 0003 of an inch long" (10 x 5 μ, Cke.)

Prof. Peck, in 31st Rep., p. 49, says: "Our specimens (on prostrate dead alders) agree with those received from Dr. Curtis under this name, but they do not agree with the description of the species as published in Grevillea. In our specimens the young plant is covered with a compact yellow conidiiferous stratum bearing elliptical conidia .00016′—.0002′ long. As the stroma increases in size it becomes naked above and of a purple-brown or chestnut color which contrasts beautifully with the yellow margin. When old it becomes darker, but I have not seen it black as described. The surface is generally irregular or uneven. The stroma is whitish or pallid within, but near the surface it is yellow. The spores vary from .0004′—.0006′ in length" (10—15 μ).

The specimens of this species in Rav. Car., V, No. 57, have the stroma 3—4 mm. broad, brown above with the margin and inside yellow; asci (p. sp.) about 60 x 6 μ, with a slender stipitate base of about the same length; sporidia uniseriate, elliptical, pale brown, 7—9 x 3—4 μ. There does not seem to be much doubt that the specimens found by Peck in New York are the genuine *H. xanthocreas*.

HYPOXYLON EPIPHILŒUM, B. & C.—Grev., IV, p. 52. On *Magnolia glauca*. Carolina (Ravenel), N. J. (Ellis). The early conidial stage consists of small (1—2 mm.), thin patches of brick-red tomentum consisting of erect hyphæ subopposite ly branched above and minutely roughened, bearing ovate, hyaline, 3—3½ x 2½ μ conidia. In the midst of these conidial patches soon appear small clusters of 3—12 perithecia ¾—1 mm. in diameter and either scattered or singly, more or less connate, the different groups or clusters more or less confluent but not continuous, covered at first with the brick-red conidial layer, then bare and black; asci cylindrical, 80 x 4½ μ (spore-bearing part about 60 μ long); sporidia uniseriate, navicular, deep brown, 7—8 x 3 μ. The perithecia have a distinct papilliform ostiolum.

HYPOXYLON SUBORBICULARE, Pk., 30th Rep., p. 63.—On bark of *Acer saccharinum*, New York (Peck). "Stroma thin, flattened, erumpent, surrounded by the ruptured epidermis, growing from the inner bark, purplish-brown, then black, the surface slightly uneven as if areolate-rimose; perithecia monostichous, subglobose; ostiola sunken, perforate, sometimes whitish; spores unequally elliptical, colored, .0004′—.0005′ long." Mr. Peck considers this an ally of *H. Laschii*, Nits., but the thin stroma would remove it from this section. Placed by Cooke in *Nummularia*.

HYPOXYLON MORSEI, B. & C.—Grev. IV, p. 51. On *Almus*. Maine (Blake); New Hampshire (Mrs. Harrison); New York (Peck). On *Pyrus malus*, *Carpinus* and *Betula*. Iowa (Holway) [*Fuckelia Morsei*, Cke., Grev., XIII, p. 108]. Stroma erumpent, orbicular, 3—5 mm. in diameter, closely embraced by the ruptured epidermis, flattened above, brownish-black and papillose from the prominent ostiola, surrounded by a black circumscribing line; perithecia large (about one mm.), submonostichous, mostly only slightly prominent, 4—15 in a stroma; asci linear-cylindrical, 110—120 x 12 μ; sporidia uniseriate, oblong-elliptical, brown, 1—2-nucleate, 17—22 x 8—10 μ. The Iowa specimens on birch have the stroma elliptical and larger (1 x ½ cm.) and the perithecia have a tendency to crack away from each other and separate. Sec. Cke., in Grev., *H. Blakei*, B. & C., is not distinct from this.

HYPOXYLON DECORTICATUM, Sch.—Syn. N. Am., No. 1179. On wood and bark, Bethlehem, Pa. (Schw.), New England (Torrey). Subpulvinate, flattened when on the wood, less so on the bark, surface rusty gray and densely covered with rough, sphæriæform tubercles resembling ostiola so as to appear roughened with black granules; perithecia peripheric in several layers, ovate-globose, immersed in the dark rust-colored stroma; pulvinuli subrotund or irregular, about 5 mm. across, often confluent; sporidia (sec. Cke., in Grev., XI, p. 123) 12—14 x 4 μ.

HYPOXYLON PRUINATUM (Klotszch).—*Sphæria pruinata*, Kl., in Linnæa, 1833, p. 489; *Rosellinia pruinata* (Kl.) Sacc., Syll., I, p. 259. Perithecia globose, effused, concrescent, prominent, white-pruinose, black within; ostiola prominent, black; asci broad-cylindrical, briefly stipitate-spored; sporidia uniseriate, ellipsoid, 1—4-nucleate, 25 μ long. On the bark of trees. North America (Dr. Richadson).

HYPOXYLON HOLWAYI, Ell., in Am. Nat., February, 1883, p. 193.—On dead *Populus*, Iowa, July (Holway). Stroma ¼—½ cm. in diameter, rather thin, orbicular, black within, surface covered with a white-pruinose coat except the projecting, acutely papillose black ostiola; perithecia in a single layer, 20—30 in each stroma; asci cylindrical; sporidia uniseriate, oblong, brown, 1—2-nucleate, 22—27 x 11 μ, resembling the spores of a *Sphæropsis*. Surrounding the stroma and standing out obliquely like a coarse fringe are short, coarse, black bristle-like teeth like the teeth of a *Hydnum* or *Irpex*. This curious growth also arises from the surface of the inner bark for some distance around the stroma, soon throwing off

the epidermis and leaving the blackened surface of the inner bark exposed. This growth is analagous to that of *Institale acariforme*, Fr., in connection with *Hypoxylon coccineum*. Sec. Cooke, in Grev., XIII, p. 15, this is the same as the preceding species (*H. pruinatum*). This is not improbable, as the only essential difference is in the coarse bristle-like teeth surrounding the stroma, a character possibly only accidental, as it was not seen on all the specimens.

b. Stroma externally black.

HYPOXYLON LEUCOCREAS. B. & Rav.—Grev., IV, p. 51. On limbs of oak. South Carolina (Ravenel). "Small, about ½ a line across, black, papillate from the projection of the perithecia; stroma snow white; asci linear; sporidia in a single row, minute, elliptic, brown." Sporidia (sec. Cke., in Grev.) 5 x 2½ μ.

HYPOXYLON EXIGUUM, Cke.—Grev., XI,p.130. On rotten wood, Alabama and Carolina, also in Mauritius. "Pulvinate, convex-applanate, black, oval or discoid (2–3 mm. broad), here and there confluent; perithecia minute, numerous, papillate; asci cylindrical; sporidia very minute, elliptic, dark, 3½ x 2 μ. A most distinct species, easily recognized by the exceedingly minute sporidia, which are a little larger in the American specimens."

HYPOXYLON PALLIDUM, E. & E.—On bark of dead oak limbs, Catahoula, La. Langlois, No. 1273. Perithecia globose, about one mm. in diameter, suberose-coriaceous, connate in tuberculiform clusters, 2—5 mm. in diameter, of a coffee-brown color, smooth but uneven from the slightly projecting flattened apices of the perithecia, which have a small, black, papillose ostiolum, surrounded by a light-colored ring; stroma scarcely any except as formed by the connate walls of the perithecia; asci cylindrical, 150 x 6 μ, including the substipitate base, with abundant paraphyses; sporidia uniseriate, navicular, opaque, about 12 x 6 μ.

HYPOXYLON ANNULATUM (Schw.) Fr., in Fr. Elenchus, II, p. 64. On dead oak limbs and having about the same range as the preceding species (*H. marginatum*). Stroma hemispheric-tuberculiform (about ½ cm. across) or irregularly effused and interruptedly confluent-tuberculose, purplish-black; perithecia subglobose, monostichous, large (1 mm.), from ¼—½ of the upper part free, finally annulate-truncate above with the black papilliform ostiolum in the center of the truncate disk; asci narrow-cylindrical (p. sp.), 75 x 6 μ or including the slender base 100—112 μ long; sporidia oblong-navicular, uniseriate, brown, mostly 2-nucleate, 7—9 x 3½ μ, with their extremities rather more obtuse than in the preceding species. Var. *B. depressa*, Fr., l. c., appears to be the effused form above mentioned. This species is not mentioned in Schw. Syn. N. Am. It is readily distinguished from *H. marginatum* by its larger perithecia, much more prominent and sometimes nearly free, and its smaller, purplish-black stromata. No. 182 in Rav. F. Am. (in the copies we have seen) is *H. marginatum*.

HYPOXYLON MARGINATUM, Schw.—Syn. N. Am., No. 1176. On dead oak limbs and trunks, from Maine to Florida and west to Ohio. Stroma pulvinate, 1—3 cm. across or by confluence more than that, convex-hemispheric, covered at first with the olivaceous conidial layer, finally black, surface slightly roughened by the projecting perithecia with their black papilliform ostiola, which arise from the center of a small, flat, circular depression or disk which, however, does not appear in the earlier stage of growth; perithecia monostichous, peripheric, about two mm. in diameter, ovate; asci cylindrical, 75—80 x 6—7 μ; sporidia uniseriate, navicular, brown, 7—9 x 3—3½ μ (mostly 7—8 μ long). This has been issued in Ravenel's Fungi, Car. Ex. Fasc., I, No. 47, and in Ellis' N. A. F., No. 471, as *Hypoxylon annulatum*, Schw., but it agrees with specimens of *Sphæria marginata*, Schw., in Herb. Schw. at Philadelphia and also with the description of that species in Syn. N. Am. The *S. marginata*, Fr., in Fries' Elenchus, II, p. 69, is evidently a different thing—probably, as Saccardo (in Syll., I, No. 371) suggests, *Nummularia discreta* (Schw.)

HYPOXYLON DIVISSIMUM (Schw.) Syn. Car., No. 46.—"Effusa, irregularis, lignea, rubiginosa, intus nigra, peritheciis globosis immersoperiphericis."

Cooke in Grev., XI, p. 131, considers this as a synonym of the preceding species (*H. marginatum*) which, as we have often seen in the Pennsylvania and New Jersey specimens, is often, at a certain stage of growth, of a dark rust color ("rubiginosa").

HYPOXYLON POLYSPERMUM, Mont.—Syll. Crypt., No. 736. Sacc. Syll., I, p. 385; Exsic. Rav. F. Am., Nos. 346 and 347. On wood and bark of various deciduous trees, *Quercus*, *Myrica*, etc. Georgia (Ravenel) Florida and Tennessee (Calkins). Stroma effused, applanate, abruptly limited, of a purplish rust color, becoming black, outline irregular, mostly elongated (1—3 x 1 cm.) and about 1 or 1½ mm. thick, surface even or subtuberculose, closely papillate from the abundant ostiola, which are surrounded by an annular depressed area as in *H. marginatum* and *H. annulatum*, smaller, however, as well as the perithecia themselves than in either of these species; asci narrow-cylindrical, about 40 x 4 μ (p. sp.); sporidia oblong-elliptical, uniseriate, 4—5 x 1½—2 μ, pale brown, sometimes a little bulging on one side; perithecia monostichous, ½ mm. or less in diam. The general appearance is that of *H. rubiginosum*, from which as well as from the two above-named species it is distinguished by its much smaller sporidia. The specimens in Rav. F. Am. are labeled *H. marginatum*, Sz., but they can not possibly be that species.

HYPOXYLON CALLOSTROMA, Schw.—Syn. N, Am., No. 1208. On wood and bark of *Laurus æstivalis*, Bethlehem, Pa. (Schweinitz). Irregularly effused, 2—3 inches long and wide, or in subturbinate groups of smaller size and seriately arranged but not really confluent, in this case resembling *H. turbinulatum*. The effused specimens resemble at first sight some simple *Sphæria* with large perithecia closely crowded

together, but a section shows that they are joined (below) in a common stroma which, on the outside, is black. The surface is uneven, granulose and punctate-rugose from the slightly prominent perithecia, which have their apices truncate with an obtusely subconic ostiolum immersed below in a grumose, bright ochraceous-red stroma of varying thickness. The perithecia themselves are oval or irregular in shape, consisting of an outer bark or shell enclosing the shining black ascigerous nucleus. The colored stroma is always present even when reduced to the simplest form enclosing but a single perithecium; sporidia 12 x 5 μ (sec. Cooke in Grev., XI, p. 125).

HYPOXYLON SMILACICOLUM, Howe.—Bull. Torr. Bot. Club, VI, p. 31. "Small, black, roundish or elliptical, irregular when confluent, pulvinate; perithecia subglobose; asci cylindrical or subclavate ; spores brown, subcymbiform, 15—20 x 7½ μ, usually with several nuclei. On dead stems of *Smilax*. The spores are rarely elliptical at maturity but sometimes pointed at both extremities."

HYPOXYLON SASSAFRAS, Schw.—Syn. Car., No. 87. Perithecia large (1½ mm.), the internal cavity nearly one mm. in diameter, occurring either single and quite evenly scattered over the matrix or loosely aggregated in clusters or groups of 3—8 perithecia standing side by side, their bases united in a thin stroma of a dirty brownish-black outside and rusty yellow within, with ⅓—½ their upper part free, subtruncate above with a minute papilliform ostiolum; asci, including the slender base, 110—120 x 4 μ; sporidia uniseriate, oblong, pale brown, 1—2-nucleate, 7—9 x 3 μ; paraphyses filiform, abundant. On dead limbs and trunks of Sassafras, from New York to Florida and west to Ohio, mostly on the bark but also on the wood.

HYPOXYLON CULMORUM, Cke.—Grev., VII, p. 51. On dead culms of *Arundinaria*. Georgia (Ravenel), Florida (Calkins), Louisiana (Langlois). Stroma convex, 2—4 mm. across, olive-gray, then black, at first nearly even, then tuberculose from the projecting perithecia, finally deciduous, appearing first as olive-gray, appressed, thin, rather indefinitely limited patches 2—4 mm. across, consisting of closely packed, erect, subsimple, brownish hyphæ 15—20 x 2—2½ μ, bearing at their tips oblong or ovate-elliptical hyaline conidia 4—6 x 2—2½ μ. These patches soon become tuberculose from the scattered incipient perithecia (3—15 in number), soon enclosed in the dull black stroma, whose surface is tuberculose-roughened by their obtuse projecting apices. In the specimens in Rav. F. Am., 351, the perithecia are mostly solitary but still enclosed in a stroma more or less distinct. The inner cavity of the perithecia is ⅓—½ mm. in diameter; asci subcylindrical, 75—85 x 8—10 μ (p. sp.) with a short stipitate base and with evanescent paraphyses ; sporidia oblong-navicular or fusoid-navicular, mostly obliquely uniseriate, 2—3-nucleate, brown, 15—18 x 6 μ. Resembles in some respects *H. Sassafras*, Schw.

(To be continued.)

NEW LITERATURE.

BY W. A. KELLERMAN.

"THE FUNGI OF WARWICKSHIRE." By W. B. Grove and J. E. Bagnall. Midland Naturalist, May and June, 1888.

"NEW BRITISH FUNGI." By M. C. Cooke, Grevillea, June, 1888.

"EXOTIC AGARICS." By M. C. Cooke. l. c.

"AUSTRALASIAN FUNGI." By M. C. Cooke. l. c.

"BRITISH PYRENOMYCETES, CONTINUED." By G. Massee. l. c.

"SOME EXOTIC FUNGI." By M. C. Cooke. l. c.

"A SUPPLEMENTAL LIST OF WORKS ON NORTH AMERICAN FUNGI." By W. G. Farlow. (Supplemental to No. 25.) No. 31, Bibliographical Contributions, Library of Harvard University, pp. 1-9.

Includes list of works issued before 1887, addenda and corrigenda (pp. 2) and list of works published in 1887 (pp. 5). Dr. Farlow does not propose to continue the work and hopes some other person will undertake the task hereafter.

Report on the experiments made in 1887 in the treatment of the Downy Mildew and the Black Rot of the Grape Vine, with a chapter on the apparatus for applying remedies for these diseases. By F. Lamson Scribner, Bulletin No. 5, Dept. of Agriculture, Section of Vegetable Pathology, pp. 113.

Report of the section of Vegetable Pathology in Report of Department of Agriculture, 1887.

Prof. Scribner gives an account with copious, good figures and bibliographical references, of the following species: Sphærella Fragariæ, Sacc.; Fusicladium dendriticum; Glœosporium fructigenum, Berk. (?); Uromyces Betæ, Pers.; Puccinia Prunispinosæ, Pers.; Cercospora gossypina, Cke.; Glœosporium venetum, Speg.; Glœosporium Lindemuthianum; Macrosporium Catalpæ and Phyllosticta Catalpæ; Actinonema Rosæ; Phragmidium mucronatum, Winter; Phragmidium speciosum, Fr.; Sphærotheca mors-uvæ, Ustilago Zeæ-Mays and Puccinia Maydis, Carr.

CORRECTIONS.

On page 55 (last Number), tenth line from the top, erase "simple; conidia subglobose, hyaline, 1—1¼ μ."

Page 56, last line of description of *Peziza glagosa*, for "80" read "8."

Page 59, for "Fourteenth" Annual Report read "Fortieth.".

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JOURNAL OF MYCOLOGY.

Vol. IV. MANHATTAN, KANSAS, AUGUST 1888. No. 8.

NEW SPECIES OF FUNGI FROM VARIOUS LOCALITIES.

BY J. B. ELLIS AND B. M. EVERHART.

(Continued from page 65.)

PHYSALACRIA LANGLOISII, E. & E.—On rotten wood. Louisiana, June 20. 1888. Langlois, 350. Minute, white or yellowish white, stipitate, stem of fibrous structure, somewhat pubescent, 300—400x50—70,* head subglobose or a little elongated or even depressed, quite solid at first, becoming hollow and sometimes cup-shaped from the falling away of the upper part, $\frac{1}{4}$—$\frac{1}{3}$ mm diam. Surface when magnified appears finely pubescent from the projecting basidia which forms a compact layer covering the outer surface of the head, and are of an oblong-cylindrical shape, about 12 x $2\frac{1}{2}$—3, bearing at their tips the oblong-elliptical, hyaline spores 4—5 x $2\frac{1}{2}$. With the basidia are urn-shaped cystidia 30—35 x 15, contracted abruptly above into a short, obtuse rough neck, projecting above the basidia. This must be distinguished from the Schweinitzian species by its much smaller size, and its urn-shaped cystidia.

CYPHELLA TRACHYCHÆTA, E. & E.—On fallen oak leaves, Louisiana, July, 1888. Langlois, 1424. Gregarious, white, cup-shaped, sessile by a narrow base, 300—400 high and broad, clothed outside with very rough appressed, subhyaline hairs with a smooth tapering tip 12—15 long. The hairs are paler around the base of the receptacle and are coarsely roughened by irregularly shaped tubercles, some of which are prolonged into short spines. The basidia and spores could not be well made out, but the latter are apparently very minute. Some of the plants were enlarged to full 1 mm. across with the margin distinctly lobed. The hymenium is nearly white with a slight tinge of slate-color.

*Measurements in centimeters and millimeters will be indicated as usual by the abbreviations cm. and mm. but micromillimeters, *i. e.* thousandths of a millimeter, will be written for the present without any denominational sign, or indicated by the abbreviation micr.

CORTICIUM PEZIZOIDEUM E. & E.—On decaying bean vines, Newfield, N. J., and on decaying Arundinaria, St. Martinsville, La., May, 1888. Langlois, 1207. Milk white, thin, orbicular, ½—1 mm. across, sometimes subconfluent, margin raised and fringed with short crisped hairs. Basidia clavate 12--15 x 7, their tips rounded and subglobose. Spores globose, 3 micr. diam.

CLAVARIA SPHÆROSPORA, E. & E.—On the ground in a garden, St. Martinsville, La., July, 1888. Langlois, 1435. Slender, 8—10 cm. high, cinereous or pale mouse-color loosely branched, ultimate divisions subulate. Spores, (white)? globose, 5—7 diam. The whole plant is quite slender, the common stem below being only about 1—2 mm. thick, and the few upright, subundulate branches of about the same thickness throughout.

HYPOMYCES PANNOSUS, Schw. J. M. II, p. 76.—What we think must be this species has been sent from Louisiana by Rev. A. B. Langlois, (No. 1340), on rotten wood. The subiculum is of a dull yellowish-white and looks like some *Rhinotrichum* or *Zygodesmus* or some abortive *Corticium*. Perithecia, waxy, yellowish, immersed in the subiculum. Ascicylindrical 100–110 x 6–7. Sporidia 1-seriate, fusoid, 1–septate and slightly constricted, at length roughish, hyaline, apiculate 25--27 long, (including the appendages), 5--6 wide; without the appendages about 20 long. H. xylophilus Pk. has shorter sporidia and a more compact subiculum with more numerous perithecia. On a re-examination of the specimen of this latter species from Prof. Morgan, we find the sporidia uniseptate.

VALSA DEUSTA, E. & E.—On decaying limbs of Carya. St. Martinsville, La., June, 1888. Langlois, No. 1334. Perithecia 4—6, sunk in the surface of the wood, with thick membranaceous walls, shining-black inside (when dry), raising the bark into distinct pustules. Ostiola erumpent in a compact fascicle, short-cylindrical (½mm), obtuse, quadrisulcate. Asci (p. sp.) clavate, about 15 x 4. sporidia crowded, 8 in an ascus, allantoid, strongly curved, minute ($3\frac{1}{2}$–4 x ½–¾). The cuticle is soon thrown off leaving the exposed surface of the inner bark uniformly blackened.

VALSA (EUTYPELLA) CAPILLATA, E. & E.—On decaying limbs, lying on the ground. St. Martinsville, La., May, 1888. Langlois No. 1254 Stromata, pustuliform, 2–3 mm. diam. numerous and closely contiguous for 5–20 cm. blackening and carbonizing the bark and bounded by a black line which penetrates the wood but not deeply. Perithecia membranaceous, thick-walled, black and shining within (when dry), 6–12 in a group, not distinctly circinating, ⅓—½ mm. diam. their bases slightly sunk in the wood. Ostiola capillary very long (½–1) cm. crooked, rough, brittle, (readily break-

ing sqnare off when dry), apices rounded and 4–5 sulcate, altogether resembling a mass of black strigose coarse hair covering the matrix with a nearly continuons coat. Asci clavate, truncate above, 15 x $3\frac{1}{2}$(p. sp.), with a slender base also about 15 long withont paraphyses. Sporidia 8, crowded, yellowish in the mass, strongly curved, with a nucleus in each end, about $3\frac{1}{2}$ x $\frac{1}{4}$. In its smaller sporidia and very long ostiola this appears distinct from *Eutypella Bonariensis*, Speg. and from Valsa scoparia, Schw. Var. subsimplex has the perithecia larger ($\frac{1}{2}$–$\frac{3}{4}$ mm.) more deeply buried in the wood and only 1–2 in a stroma which is rounded and protuberant like the perithecia of some large suberumpent simple Sphæria. Both the var. and the species are found also on the bare wood.

DIATRYPE ACERVATA, E. & E.—On dead spots in living leaves of *Yucca filamentosa*, Newfield, N. J., July—Aug., 1888. Stromata small ($\frac{1}{2}$ mm.), tobacco brown becoming black, soft, either single or oftener in compact groups, erumpent in the center of elliptical ($\frac{1}{2}$—4 cm. long) dirty white dead spots with a definite dark, red-brown border. Perithecia subcircinately arranged, 5—10 in a stroma, white inside, 75—100 diam. subglobose with a short subcylindrical ostiolum which is hardly discernable on the surface of the stroma. Asci oblong 35—40 x 7—8 without any distinct paraphyses. Sporidia biseriate, oblong-cylindrical, slightly curved, hyaline, obtuse, slightly constricted in the middle and uniseptate, 12—18 x 3 exactly resembling the sporidia of a Sphaerella. The clusters of stromata resemble the sori of a *Puccinia*.

LOPHIOSTOMA (LOPHIONEMA) IMPLEXUM.—On dead adventitious roots of Sorghum Halapense and on lower part of sheathing leaves of (Andropogon) ? Pointe a la Hache, La, June, 1886. Langlois 1439. Perithecia gregarions, brown strigose, ovate, about $\frac{1}{3}$ mm. diam., subcuticular, the obtnse-conic, slightly compressed ostiolum and upper part of the perithecia erumpent. Asci 150—160 x 8—10 clavate-cylindrical, with abundant filiform paraphyses. Sporidia filiform, closely braided or twisted together and about as long as the asci. Well characterized by its perithecia clothed with brown strigose hairs and its braided sporidia.

LOPHIOSTOMA MINIMA, E. & E.—On decaying wood, St. Martinsville, La. Rev. A. B. Langlois 1388. Perithecia scattered, small (200—250), ovate-globose, partly snnk in the wood, ostiola only slightly compressed, soon deciduous. Asci clavate-cylindrical, 75 x 8—9 with abundant paraphyses. Sporidia uniseriate, oblong-elliptical, 10—12 x 4—5, subhyaline at first and nucleate, then olivaceous and 3-septate, ends rounded, obtnse.

LOPHIOSTOMA HYSTERIOIDES, Ell. & Langlois.—On rotten oak stumps, St. Martinsville, La., July, 1888. Langlois, 1406. Perithecia gregarious, subglobose with their bases slightly sunk in the wood, mostly a little less than $\frac{1}{3}$ mm. diam., ostiolum forming a narrow ridge entirely across the perithecia and thus giving them the appearance of *Hysterium*. Ascicylindrical, 60—70 x 5—6 with abundant paraphyses. Sporidia biseriate, fusoid, nearly straight, 3-septate, smoky-hyaline, 14—16 x 3, the next to the upper cell swollen.

LOPHIOSTOMA (LOPHIOSPHÆRA) MERIDIONALE.—On rotten wood, St. Martinsville, La., May, 1888. Langlois No. 1205 Perithecia scattered, minute ($\frac{1}{4}$ mm.) compressed buried in the wood, the projecting flattened black ostiolum alone being visible. Asci clavate—cylindrical, 75 x 8—9 with abundant paraphyses. Sporidia biseriate, fnsoid hyaline, slightly curved, 1—septate, and slightly constricted, 30—35 x 5.

LEPTOSPHÆRIA FILAMENTOSA, E. & E.—On dead places in living leaves of Yucca filamentosa, Newfield, N. J., July, 1888. Perithecia immersed scattered, small (200—225 micr.), depressed-globose the upper part slightly raising and barely rupturing the cuticle ostiolum not prominent. Asci subcylindrical, 75—80 x 7—8, with abundant paraphyses. Sporidia biseriate, oblong-cylindrical, 3—septate, yellow, constricted at the septa, not curved, 12—15 x 4—5, ends obtuse. The spermogonial stage is a Coniothyrium (C. *concentricum*)? with small (4 micr.), snbglobose, brown sporules. The parts of the leaf (mostly the sides or tips) occupied by the ascigerous stage of this species are quite dead and already partly decayed and brittle.

METASPHAERIA PUNCTULATA, E. & E.—On dead culms of Panicum Curtisii, St. Martinsville, La., March, 1888. Langlois 1358 Perithecia scattered, immersed, the surface of the culm remaining, quite even but blackened around the small erumpent black ostiola or finally more or less uniformly blackened. Perithecia globose $\frac{1}{4}$—$\frac{1}{3}$ mm. diam. with a white, rather firm nucleus. Asci clavate-cylindrical 80—110 x 20 with indistinct paraphyses. Sporidia fusoid, slightly curved, 3—septate, hyaline, 40—50 x 6—7.

PLEOSPORA PUSTULANS, E. & E.—On the exposed inner surface of bark of Fraxinus. Clyde, N. Y., April, 1888. O. F. Cook, No. 538. Perithecia gregarious, membranaceous ovate-globose, $\frac{1}{2}$—$\frac{3}{4}$ mm. diam. raising the bark into subconical pustules with the papilliform ostiolum erumpent. Asci clavate-cylindrical, with a short stipitate base, about 100 x 15 micr., with abundant paraphyses, Sporidia uniseriate or subbiseriate varying from ovate to oblong

and oblong elliptical, at first pale brown and 3—4—septate with the ends subacute, soon 5—7—septate and darker with the ends obtuse, one or two of the cells divided by a longitudinal septum which finally runs through all but the terminal cells, more or less distinctly. This is very distinct from *P. velata* Sacc. & Roum. in F. G. 1081 in its much larger perithecia which are not flattened and in its mostly longer 3—7—septate sporidia. Dr. Berlese in his fine monograph of Pleospora figures *P. Saccardiana* (of which he gives *P. velata* as a syn.) with 4-septate sporidia though he says the normal number is three as we find them in our copy of F. G.

PYRENOPHORA HYPHASMATIS, E. & E.—On exposed cotton cloth. St. Martinsville, La., July, 1888. Langlois 1433. Perithecia gregarious, superficial, flask-shaped, mouse-colored, 340—370 micr. diam, clothed except the broad, truncate ostiolum with brown, sparingly branched and sparingly septate, short, soft, somewhat crisped and matted hairs. Asci clavate-cylindrical 65—70 x 6–7 including the slender base, (p. sp. 50—55 micr. long), with abundant paraphyses. Sporidia crowded-biseriate, brown subnavicular with the ends at first subacute, 3-septate with occasionally one of the cells longitudinally divided 12—15 x 5—7 (mostly 12 x 6 micr). This has the general appearance of a Chætomium.

OPHIOBOLUS CONSIMILIS, E. & E.—On dead stems of Ochra. Louisiana. Langlois No. 1312. Perithecia as in O. *porphyrogonus* gregarious on dull-red spots but not exclusively confined to them, smaller than in that species (about 200—250 mm.), sunk in the substance of the matrix their obtusely conic, $\frac{1}{2}$ mm. long ostiola projecting. Asci cylindrical, 80—90 x 8—9, with abundant paraphyses, Sporidia filiform, yellowish—hyaline nearly straight, multinucleate (becoming multiseptate) ?, 75—80 x 2—$2\frac{1}{2}$. Distinguished from O. *pophyrogonus* by its shorter, broader asci and sporidia and smaller perithecia.

BOTRYOSPHÆRIA MINOR E. & E.—On Sesbania, Louisiana. Langlois 1403 (partly) Perithecia minute (150—170 micr), white inside, mostly in small erumpent groups of 2—6 joined in an imperfectly developed stroma. Asci 75 x 20 micr. Sporidia crowded biseriate, subelliptical (narrower at the ends), 14—16 x 6—7, yellowish-hyaline. Differs from the larger forms included under Botryosphæria (Melogramma fuliginosum), in its smaller size.

PHYSALOSPORA SESBANIÆ E. & E.—On Sesbania macrocarpa. St. Martinsville, La. June 1888. Langlois, 1403 (partly). Perithecia scattered, 150—200 micr. diam. of rather coarse cellular structure, partly erumpent, papillate. Asci clavate-cylindrical

about 60x10 micr., with imperfectly developed paraphyses. Sporidia crowded biseriate, clavate-oblong or fusoid-oblong, slightly curved, yellowish-hyaline, 2—3—nucleate, 14—16 x 3½—4. Differs from Botryosphæria minor on the same stems in its solitary perithecia and narrow sporidia.

THYRIDARIA EUTYPOIDES, E. & E.—On bark of decaying Melia. Louisiana, July, 1888. Langlois, No. 1377. Perithecia minute (110—120 micr. diam.), immersed, scattered quite uniformly through the blackened and subcarbonized substance of the bark but lying mostly near the surface and here and there collected in valsiform groups. Ostiola short cylindrical with a round opening at the subtruncate and slightly swollen apex and so numerous as to appear under the lens like a fine black pubescence. Asci (p. sp.) about 35 x 7 micr. or with the short stipe like base 40—45 micr. long, surrounded with abundant filiform paraphyses. Sporidia biseriate, oblong or clavate-oblong, 3-septate and slightly constricted at the septa, olive-brown, slightly curved, ends subobtuse, 10—12 x 2½—3. On the same specimens was a Valsa of the section Eutypella, agreeing well with the description of *Eutypella paradisaica*, Speg.

CERATOSPHÆRIA MICRODOMA, E. & E.—On bark of decaying (Sambucus)? St. Martinsville, La., June 1888. Langlois No. 1310. Perithecia barely covered by the bark, densely gregarious, minute, not over one-sixth mm. in diam., ostiola projecting, cylindrical, ⅓ mm. long, rough and more or less overrun with a brown tomentum (which however may be only accidental). Asci oblong-cylindrical or clav-cylind. 50—55 x 7—8 subsessile with rather stout filiform paraphyses. Sporidia biseriate or crowded, oblong or clavate-oblong 3-septate and slightly constricted at the septa, olive-brown 11—12 x 2½—3.

SORDARIA PENICILLATA, E. & E.—On an old decaying Chinese mat. St. Martinsville, La., July 1888. Langlois No. 1449. Perithecia gregarious, ovate, ¼—⅓ mm. diam., at first entirely buried except the protruding ostiolum, at length with upper half emergent, ostiolum short-cylindrical or obtusely-conical and surrounded by a tuft of straight, erect, closely crowded pale brown continuous hairs ⅓—½ mm. long. Asci oblong cylindrical about 150 x 20—25, 4-spored, with indistinct paraphyses. Sporidia subhyaline and clavate-cylindrical at first, then olivaceous with a single large nucleus, finally elliptical and opake, 25—30 x 18—20, with a cylindrical, nearly straight, hyaline appendage 12—15 x 4—5 at the lower end and the upper end obtusely pointed or subtruncate.

SORDARIA STRIATA, E. & E.— On decaying stems of some large weed. St. Martinsville, La. July, 1888. Langlois No. 1408. Gregarious. Perithecia ovate-conic, $\frac{2}{3}$ mm. high and $\frac{1}{2}$ mm. broad, black, tubercular—roughened, the tubercles seriate above so as to cause the conic ostiola to appear striate. The tubercles are at first capped with a few light colored granules, like grains of white sugar but these at length disappear. Asci linear-lanceolate, contracted towards each end and perforated above, 200 micr. long and over (including the filiform base) and 12—15 micr. wide, with abundant paraphyses. Sporidia biseriate, (not fully mature in the specimens seen) 45—50 x 4—4½, consisting of a cylindrical body with the upper end enlarged into an elliptical head 12—15 x 7—8 with a hyaline (12 micr. long) appendage at each end. Well marked by the tuberculose-striate ostiolum.

CHÆTOMIUM CANINUM, E. & E.—On dog dung, with (Isaria felina)? St. Martinsville, La. July 1888. Langlois No. 1384. Densely gregarious, cinereous gray. Perithecia ovate, 250 x 220 micr. membranaceous, thin, rather coarsely cellular, clothed with light gray. muricately-roughened, rather distantly-septate hairs which are much longer and denser above (300 x 4 micr.) with their tips subcircinately involute, and their bases slightly swollen. The hairs around the apex of the perithecia diverge so as to show the black papilliform ostiolum. Asci clavate (p. sp. 20—24 x 8—9 micr.), with a slender base. Sporidia 8 in an ascus, short lemon-shaped, smoky-hyaline, darker (subolivaceous) in the mass, scarcely apiculate, 5—7 x 4—5 mostly 5—6 x 4—4½, at first considerably smaller, in fact they do not appear to attain their full size while in the asci. This may perhaps be considered as a dwarf form of *Ch. stercoreum* Speg., as it agrees with the description of that species only it is smaller throughout. The specimens examined seemed mature but no sporidia were seen over 7 micr. in their longest diameter.

CARYOSPORA LANGLOISII, E. & E.—On old canes of Arundinaria. Louisiana March '88. Langlois, No. 1238. Perithecia gregarious, nearly superficial, their bases slightly sunk in the matrix, depressed-conical, large (nearly 1 mm. across), dull black with a distinct papilliform ostiolum. Asci broad oblong or narrow elliptical subsessile 120—140 x 40—45, 8-spored, with abundant filiform paraphyses. Sporidia crowded in the asci somewhat almond-shaped or acutely elliptical, 1-septate and slightly constricted at the septum, ends obtusely pointed, yellowish-hyaline at first, soon dark brown, 35—45 x 16—20.

DIATRYPE PUSTULANS, E. & E.—On dead stems of *Arundinaria*. St. Martinsville, La. Langlois 1215 (partly). Stromata flattened, formed of the scarcely altered substance of the matrix, covered by the cuticle which is blackened and raised in a pustuliform manner and finally pierced by the slightly projecting papilliform ostiola. The separate stromata are $\frac{1}{4}$—$\frac{1}{2}$ cm. across but are more or less confluent with each other for 2—4 cm. or more in extent, the surface of the culm being continuously blackened and the entire area bounded by a black circumscribing line. Perithecia membranaceo-coriaceous, subglobose or a little flattened, of medium size, 8—12 in a stroma. Asci slender, 75—85 x 6—7, subsessile, with distinct filiform paraphyses. Sporidia 1-seriate, oblong, 1-septate and constricted, slightly narrowed at the ends, straight, brown, 10—12 x 3. This is preceded or accompanied by a *Coniothyrium* with numerous small, immersed-perithecia and small (2 micr.) brown sporules which ooze out and stain the surface of the matrix with an olivaceous, pulverulent coat.

*DIATRYPELLA DECIPIENS, E. & E.—On bark of *Umbellularia Californica*. Sent from Coos Co., Oregon, in Feb. 1884, by our esteemed friend, the late Wm. S. Carpenter. Stroma erumpent, black (lighter colored at first), orbicular, or oblong, 2—6 mm. Across, pulvinate, convex or, in the larger specimens, almost plane, whitish inside, with a black circumscribing line around the base. Ostiola slightly prominent, quadrisulcate, situated in a slight depression. Perithecia monostichous, oblong-ovate about $\frac{3}{4}$ mm. long, contracted abruptly into a short neck above. Asci (p. sp.) 50—70 x 6—7, polysporous. Sporidia yellowish, allantoid, moderately curved, $3\frac{1}{2}$—$4\frac{1}{2}$ (or exceptionally 5 micr. long) and less than 1 micr. thick. This can not be distinguished by its external characters from *Diatrype bullata*, (Hoff.) but internally it is very different.

GNOMONIA TENELLA, E. & E.—On fallen and decaying leaves of Acer rubrum, Newfield, N. J., June, 1888. Perithecia amphigenous, scattered, mostly on the lamina of the leaf and not confined to the veinlets, depressed-globose, small ($\frac{1}{4}$—$\frac{1}{3}$ mm.) covered by the cuticle which is raised above it. Ostiolum black, straight, bristle-like, about 1 mm. long. Asci fusoid, 50—70 x 6—7. Sporidia fasciculate, narrow cylindrical, nucleate, 16—22 x $1\frac{1}{2}$—2 with a long slender pointed, hair-like appendage at each end 15—20 micr. long. Specimens on Rubus fruticosus in Kunze's Fungi Sel. 113, referred to *G. setacea Pers.* are much like this if not the same. The apical appendages on the sporidia are coiled in the

*This and the preceding species were accidentally omitted on page 63.

upper part of the ascus and when this is ruptured protrude like the sporidia in some species of Ophiobolus. Often these hair-like appendages remain more or less bent or curved but for the most part straighten themselves out more or less perfectly after leaving the asci. The perithecia occur also on the petioles of the leaf, and are more perfectly developed there but are readily distinguished from those of *G. emarginata* by their shorter thinner ostiola and also by the color of the petiole itself which is of a lighter color when occupied by the last mentioned species.

(GNOMONIA EMARGINATA, Fckl. Symb. p. 122)?—On petioles of fallen and decaying leaves of Acer rubrum, Newfield, N. J., June 1888. Perithecia depressed, $\frac{1}{2}$ mm. diam. covered by the cuticle, which is distinctly raised over them. Ostiolum black, setiform, crooked, slender, about 2 mm. long, attached to one side of the perithecia. Asci sessile, broad fusoid, 70—80 x 15. Sporidia fasciculate, fusoid 4-nucleate (probably becoming 1-septate), yellowish-hyaline, 25—30 x 4—$4\frac{1}{2}$, with a stout, awl-shaped, hyaline appendage at each end. The appendages however soon disappear. Fuckel gives no measurements of the asci and sporidia and on referring to the specimens in the exsiccati accessible, those in Kunze's Fungi Selecti, 252 and in Fungi Austriaci, 966 and Fungi Gallici 3951 are without fruit. In the Rabh. Winter series (2756 on leaves of Betula alba), the perithecia and ostiola are the same as in our specimens but the asci and sporidia are smaller, viz.: 35—40 x 7, and 20—22 x 2—$2\frac{1}{2}$, respectively. Dr. Winter refers the number just mentioned (2756) to *G. setacea* Pers. but that species has smaller perithecia and sporidia. Saccardo in Syll. gives the sporidia as 14—15 x $1\frac{1}{2}$—2, and Karsten 8—14 x about 1 micr. Examining the specimens of this species in our exsiccati we find it in de Thumen's Mycotheca, 455 and 1741, in Rehms Ascomycetes 494 and 495 and in Kunze's F. Sel. 251, with the sporidia quite uniformly 10—12 x $1\frac{1}{4}$—$1\frac{1}{2}$. It would therefore seem that Rab. Winter 2756 may be more properly referred to *G. emarginata*, Fckl. and we are disposed to refer for the present also to that species the Newfield specimens on petioles of maple leaves though they have the sporidia considerably longer and thicker. No appendages were seen on the sporidia in Rabh. Winter 2756 but these often disappear in old or mature specimens.

SIPHOPTYCHIUM CASPARYI, Rfski.—In 1884 I received from Dr. Rex a specimen which was thought to belong to this species and the description of *S. Casparyi* given by Rostafinski in his "Mycetozoa" agreed in all respects with the plant from the Adirondack Mountains. A note on the subject was given by Dr. Rex in the *Botanical Gazette* of October 1884 together with a translation of Rostafinski's description. I would add that Dr. Rex's plant also agreed with the figure of *S. Casparyi* in the supplement to Rostafinski's work. In *North American Fungi*, No. 2092, specimens of this species were distributed collected by Dr. Rex, I presume at the same time with the specimen which he had previously sent me, but on this point I am not certain. Possibly there may have been a confusion in the distribution for it is stated in *Grevillea* of June last that No. 2092 *N. A. F.* is not *Siphoptychium* but *Tubulina cylindrica*. On referring to my own copy of *N. A. F.* I find that No. 2092 is the same as the *Siphoptychium* previously examined by me and, although not in so good condition as the original specimen, owing perhaps to the fact that it had been slightly pressed, on examination one can distinctly recognize the columella and the thick scanty capillitium characteristic of *Siphoptychium*. The general aspect is that of *Tubulina* but the presence of capillitium and columella excludes the fungus in question from that genus. It seems to be beyond question that we have in this country a genuine member of the genus *Siphoptychium* and, as far as can be told from the detailed description given by Rostafinski, our species is the same as that found in Europe. Possibly an examination of European specimens might show that our plant was specifically distinct, although it is not very probable. There is no doubt however with regard to the generic position of our plant. W. G. F.

NEW LITERATURE.

Nota sopra una forma singolare di *Agaricus*. U. Martelli. Nuovo Giornale Bot. Ital. Luglio, '88.

Due Funghi nuovi dell'agro Bellunense. Per. U. Martelli. (Phyllosticta Bellunensis et P. Venziana on Ulmus & Lamium. l. c.

Champignons nouveaux de l'Aube," observes par le Major Briard. Revue Mycologique, Juillet, '88.

Sur quelque especes de Meliola nouvelles ou peu connues, par M. N. Patouillard. l. c.

Fungi Selecti exsiccati XLVI^{e} Centurie. C. Roumeguere. l. c. (Twenty-eight species are represented by North American specimens.)

Fungi novi Fennici. Auctore P. A. Karsten. l. c.

Fungi found near Rosburg in 1886. Rev. D. Paul. The Scottish Naturalist, July, '88.

Bildungsabweichungen mehrerer Arten der Gattung Agaricus. F. Eichelbaum. Berichte der Gesellschaft fur Botanik zu Hamburg, Heft III.

Ueber einige durch *Protomyces macrosporus. Ung.* erzeugte Pflanzenkrankheiten im nordlichen kalkalpengebiete. Dr. Salebeck. l. c.

The Fungi of Warwickshire (continued). By W. B. Grove & J. E. Bagnall. Midland Naturalist, July '88.

Verzeichniss samtlicher Uredineen nach Familien ihrer Nahrpflanze geordnet. Von Dr. P. Dietel, Leipzig, '88, pp. 1—48. I—VIII.

Contributions a la Flore mycologique des Pays Bas. XII Pl. V. Par C. A. J. A. Oudemans. Overdr. Ned. Kruidk. Arch. D. V. 2e St. '88.

A Provisional Host-Index of the Fungi of the United States. By W. G. Farlow and A. B. Seymour. Part I. Polypetalæ, 50 pp. Cambridge, Mass., Aug. '88.

CORRECTIONS.

In JOURNAL OF MYCOLOGY, IV, p. 4 cancel Cercospora fraxinea, E. & C, which is the same as *C. Asclepiadoræ* E. & K. id. p. 6. —Id. IV, p. 4, cancel Cercospora atra, E. & E. which is the same as C. fuligmosa E. & K. id. III, p. 103.—Cancel also (id. II, p. 2.) *Cercospora superflua*, Ell. & Holw, which is the same as *C. Gymnocladi*, E. & K.—Id. IV, p. 3, 13th line from top for *Psoralea argophylla* read *Lespedeza capitata.*—Id. IV, p. 5, 19th line from top, after *Cnicus* insert *undulatus.*—Id. IV, p. 7, 11th line from top for 112 read 1127. Id. IV, p. 63, 20th line from top, for *have* read *having.*—Id. p. 64, 12th line from top for "cm," read "mm."—Id. p. 69, 9th line from top for "two mm." read $\frac{1}{2}$ mm.—Same page 18th line from top for "*Divisissimum*" read *durissimum.*—In "Index to described species" IV, p. 12, strike out Helminthosporium hadotrichoides and the three Septorias.

On page 63 of this No. of the JOURNAL, for Lophiostoma minima read L. minimum, and correct error in paging from p. 62 to p. 68, inclusive.

TABLE OF CONTENTS.

INDEX TO DESCRIBED SPECIES.

JOURNAL OF MYCOLOGY.

Vol. IV. MANHATTAN, KANSAS, SEPTEMBER 1888. No. 9.

SYNOPSIS OF THE NORTH AMERICAN SPECIES OF HYPOXYLON AND NUMMULARIA.

BY J. B. ELLIS AND BENJA. M. EVERHART.

(Continued from page 70.)

HYPOXYLON XANTHOSTROMUM, Schw. Syn. N. Am. 1212.—Seriately erumpent in cracks of decorticated oak limbs, Bethlehem, Pa. (Schw.) Seated on a thin crust which is not at all effused. In a simple series emerge distinct tubercles, which are sometimes confluent for an inch or more, brown-black, rugose, larger mixed with smaller ones in the same group; ostiola indistinct. A vertical section of the tubercles shows one or more rather large, globose perithecia enclosed in the grumose yellow stroma which on the outside is black. Sporidia (sec. Cke. l. c.) 12 x 6 micr.

HYPOXYLON CATALPÆ, Schw. l. c.—On bark of Catalpæ. Bethlehem, Pa. (Schw.) Seriately erumpent through cracks in the bark, of a rusty color at first, then black. Tufts or pulvinuli longitudinally confluent. Surface of the stroma granular from the underlying perithecia, finally black and rugose. Perithecia abundant in the scanty black stroma; ostiola papilliform, deciduous. Sporidia (Cke. l. c.) 13 x 6 micr.

HYPOXYLON TRANSVERSUM, Schw. (l. c. 1180.)—Transversely erumpent through the bark on a trunk of Betula carpinifolia, Mauch Chunk, Pa. (Schw.) Large, subpulvinate, subimmersed in the bark and protruding in a pulvinate manner above, sometimes angular-turbinate. Surface irregularly rugose or even, black. Perithecia peripheric, ovate, shining black inside. Stroma dark brown, pulverulent, one inch long, $\frac{1}{4}$ inch thick. Ostiola distinctly prominent, plano-conic. Sporidia (Cke. l. c.), 12 x 4 micr.

HYPOXYLON RAMOSUM, Schw. in Grev. XI, p. 132.—On branches, Indiana. Convex, erumpent, pulvinate, black, (1 cm.) Perithecia subglobose, scattered, black, not prominent, pierced above. Asci

cylindrical. Sporidia sublanceolate, continuous, brown, straight or curved, 16—18 x 3½. This seems to be a different thing from Sphæria ramulosa Schw. which appears referable to *Xylaria*.

IV. PLACOXYLON.—Stroma broadly effused.

(*a*) *Externally colored, not black.*

HYPOXYLON PERFORATUM, Schw. Syn. Car. No. 45.—On dead oak, maple, ash and other limbs. Common. Also on dead petioles of Sabal serrulata, Florida (Calkins). Stroma (on the bark or wood) superficial, effused or tubercular convex (2—4 mm), often interruptedly confluent for several cm. in extent, dark or purplish-rust color dotted with the minute, white-margined, punctiform ostiola. Conidial layer cinereous-white, pulveraceous. Conidia minute, ovoid or subglobose on short subsimple or branching hyphæ. Perithecia submonostichous, globose small (¼—⅓ mm.), lying near the surface of the stroma, crowded, mostly not distinctly prominent. Asci cylindrical; 60—90 x 7—9 (p. sp.) with a long filiform base and overtopped by the filiform paraphyses, 8-spored. Sporidia obliquely uniseriate, ovate, with the ends mostly obtuse, nearly straight or subinequilateral, dark-brown 10—14 x 5—7. Bears a general resemblance to *H. rubiginosum*.

HYPOXYLON RUBIGINOSUM, (Pers.) Syn. p. 11.—Fr. Summ. Veg. Scand. p. 384. On decorticated limbs of various deciduous trees. Common in this country and in Europe. Around Newfield, N. J., mostly on Acer and Quercus. On beech and Liriodendron, Penna. (Everhart). On various dead limbs, Fla. (Calkins). Stroma mostly broadly effused, but also occurring in small patches (2—4 mm. across), bright ferruginous-red, finally black, tolerably thick (1—2 mm.), surface nearly even or distinctly mammillose from the projecting perithecia. Conidial layer pulverulent, thin, at first dirty olivaceous-yellow, then bright ferruginous. Conidia obovate or oval, very small, acrogenous on short, sparingly branched sterigmata. Asci cylindrical, long pedicellate, 8-spored with slender filiform paraphyses, 60 x 6 micr. (p. sp). Sporidia monostichous, ovate, inequilateral, or nearly straight, dark brown, 10 x 15 micr. The perithecia appear first in the middle of the stroma and spread towards its margin which thus remains for some time sterile. The perithecia are larger than in *H. perforatum* and more evenly effused and the stroma is of a brighter color. At first and around the margin of the stroma the perithecia stand quite separate but they are finally closely packed.

HYPOXYLON SUBCHLORINUM, Ell. & Calkins.—On bark of dead limbs of some deciduous tree. Florida. (Calkins Nos. 55 and 139). Stroma suborbicular, thin (1 mm.) flat ½—1 cm. diam.

sometimes continuous or interruptedly confluent for 5 or more cm. purplish rust color with a thin sterile margin at first but this generally disappears leaving the margin abrupt and rounded, surface papillose from the slightly prominent rounded apices of the perithecia which are in a single layer, subglobose, small ($\frac{1}{4}$ mm.) numerous but not crowded so as to be much compressed, covered above with a thin stromatic layer which is of a dirty greenish yellow within, at least in the young fresh growing state, and finely white-punctate from the minute ostiola but both the internal yellow color and the white punctate ostiola finally disappear. Asci (p. sp.) 60—65 x 7 with a stipitate base 30—40 micr. long. Sporidia uniseriate, elliptical or subnavicular opake, 7—8 x 3$\frac{1}{2}$—4. The general appearance, color and mode of growth is that of *H. rubiginosum*, Pers. from which it differs in its yellow stroma, smaller perithecia and sporidia, nor can it be referred to any of the species already enumerated having the internal substance of the stroma yellow. The yellow stroma and smaller sporidia will also distinguish this from H. perforatum Schw.

HYPOXYLON MINIATUM, Cke. Grev. VII, p. 80.—On decorticated wood, Florida (Calkins), Clyde, N. Y. (O. F. Cook, Jr.) Effused. Stroma 1—2 cm. long, $\frac{1}{2}$—1 cm. wide about 1 mm. thick convex in the small specimens, flattened in the larger ones, margin definite rounded, rusty-red, lighter and brighter than in *H. rubiginosum*, black within, surface densely and rather acutely papillose from the projecting apices of the closely packed ovate, monostichous perithecia which are about $\frac{1}{2}$ mm. long and $\frac{1}{3}$ mm. wide. Asci 75—80 x 7—8 (p. sp.). Sporidia uniseriate, short navicular, opake, 10—14 x 5—6. Differs from *H. rubiginosum* in its much smaller perithecia and the brighter color of the stroma. The sporidia are larger than stated by Cooke in Grev. but our specimens seem to be referable to his *H. miniatum* as far as we can see.

HYPOXYLON FENDLERI, Berk. Grev. XI, p. 132.—On rotten wood, Venezuela. Extra limital but will probably be found in Central America. Effused, determinate, thick, rugose, yellow, finally black-brown ("atrofuscum"). Perithecia distinct, globose, elevated, with black papilliform ostiola. Asci cylindrical, sporidia narrow-elliptical, straight or somewhat curved, dark, 12—13 x 4. Somewhat like an effused state of H. multiforme or a thick form of H. rubiginosum, at length nearly black.

HYPOXYLON ATROPURPUREUM, Fr. Summ. Veg. Scand. p. 384.—On bark of Tilia, Iowa (Holway). On bark, British Columbia (Macoun). Stroma broadly effused, continuous or interrupted, thin, purplish-black becoming nearly black, surface minutely

papillate from the slightly prominent perithecia which are of medium size and are closely packed in a single layer. Asci cylindrical, 50—60 (p. sp.) long 7—8 micr. broad. Sporidia obliquely monostichous, ovate, sub-acute at each end and slightly inequilateral, opake, 10—14 x 5—6.

HYPOXYLON PICEUM, Ellis, Am. Nat. Feb. 1883, p. 194.—On rotten wood, Iowa, (Holway). Stroma effused, subelliptical or elongated, often by confluence forming patches 4—8 cm. long by half as wide, dark brown, nearly black within, surface wrinkled and covered with a dull yellow conidial growth which also spreads over the surface of the wood adjacent and consists of short, rudimentary, irregularly branched hyphæ covered with the minute, dust like conidia. Perithecia in 2—3 layers densely crowded and angular by compression, the lower layer much elongated. Ostiola minute, scarcely visible. Asci? Sporidia navicular, brown, 11—12 x 4. The stromata resemble blotches of black pitch dusted over with yellow meal and are of about the consistency of beeswax.

HYPOXYLON FUSCOPURPUREUM. Schw. Syn. N. Am. 1209—On rotten wood and bark, Carolina and Penna. (Schweinitz). Variously effused, margin generally sterile. Outer crust rather hard, black and shining within, surface elegantly purple, at length dark-purple, regularly granulose from the subjacent perithecia which are oblong ovate, polystichous, numerous, small, immersed in the shining black stroma, staining the wood or bark around it black, inseparably adnate, extending for an inch or more in length and preferring depressions in the surface of the wood. Sec. Cooke, l. c. the sporidia are 14—7 micr. The specimen in Rav. F. Am. 653 on bark of ash, seaboard of So. Ca. has sporidia 9—11 x 4½—6 and looks more like a smooth form of *H. rubiginosum*.

Hypoxylon floridеum, B. & C. Grev. IV, p. 50.—On Acer rubrum, Carolina (Ravenel). Effused, for many inches, undulate, wine colored, pulverulent, perithecia hidden. Sporidia cymbiform, uninucleate, 9—10 x 3½, Asci linear.

Hypoxylon jecorinum, B. & Rav. Grev. IV. p. 50.—Effused, an inch or more long and broad, at first covered with a tawny yellow powder then liver colored, dotted with the dark ostiola. Sporidia sec. Cooke l. c. 9 x 4 micr. The specimens in Rav. Fungi Car. IV, 37, have the stroma subelliptical, 1—2 x 1 cm. and sporidia 7—8 x 3—4. Florida specimens collected by Col. Calkins during the winter of 1887, have the stroma 1½—3 x 2—2½ cm. Ravenels specimens are on bark of Acer rubrum and the Florida specimens are also on bark of some deciduous tree. The

perithecia form a single layer on the surface of the black carbonaceous 1 mm. thick stroma, and are oval in shape and closely packed, about ½ mm. high with their apices slightly projecting thus making the surface of the stroma finely papillose.

HYPOXYLON IANTHINUM, Cke. Grev. XI, p. 132,—"Stromate in ligno effuso, pulvere ianthino obsito, demum nigricante. Peritheciis stipatis, obovatis, vertice subrotundatis confluento-planisve. Ostiolo minute papillato. Ascis cylindraceis. Sporidiis ellipticis, obtusis, continuis, fuscis, 15 x 6 micr. U. States, (Ravenel No. 1579.)" This species is evidently widely diffused in this country, as we have specimens collected at Bellville, Canada, by Dr. Macoun, Clyde, N. Y. by O. F. Cook, Jr., and in Louisiana by Rev. A. B. Langlois. The Canada and La. specimens have been submitted to Dr. Cooke for examination and he pronounces them to be *H. ianthinum* Cke. of which the original was collected in Potsdam, N. Y., many years ago. The name is badly chosen and misleading for the stroma in all the specimens (unless it be the Potsdam specimen, which is now lost or mislaid) is of a glaucous or grayish white, about the same as in *H. atropunctatum*, Schw. or *H. pruinatum*, Kl., without any *purplish* shade whatever. The description above quoted applies in other respects tolerably well. Stroma thin elliptical or subelongated 1—2 x ½—1 cm. and in the Louisiana specimens subconfluent, distinctly papillose.

HYPOXYLON ATROPUNCTATUM, Schw. Syn. Car.No. 44.—On dead trunks of oak from N. Y. to Florida. Broadly effused, smooth, white, dotted with the smooth, convex, black ostiola and surrounded with a black sterile margin, substance very hard and rigid, black inside. Perithecia in a single layer, not crowded, ovate, about ½ mm. high. Asci cylindrical, abruptly contracted below into a short stipitate base, about 150 x 10—12. Sporidia uniseriate acutely elliptical or almond shaped, opake, 25—30 x10—12. (*Anthostoma*, Sacc. Syll.) According to Schweinitz this species is sometimes interruptedly continuous for 20 feet along the standing trunks of oak (Q. falcata) which are also nearly surrounded by it.

HYPOXYLON CROCOPEPLUM, B. & C. Grev. IV, p. 49.—On decayed bark, South Carolina, (Ravenel). Nearly ½ inch broad, irregular, depressed, clothed with a dense coat of red ferruginous (peroxyd) powder; perithecia rather prominent, with a minute ostiolum. Sporidia dark, shortly cymbiform, 13—14 x 8 (Sec. Cooke l. c.)

b. Externally black.

HYPOXYLON STIGMATEUM, Cke. Grev. VII, p. 4,—On bark of dead oak, California (Harkness). On beech bark, Ohio (Morgan

271). On an old log, Louisiana (Langlois 743.) On fallen logs, So. Ca. (Ravenel F. Am. 649.) Effused, black, crustaceous, thin (1—1½ mm.), papillose from the prominent ostiola, 3—5 or more cm. broad, originating beneath the cuticle of the bark which it throws off in the same manner as *Nummularia Bulliardi* Tul., which it much resembles. Asci linear-cylindrical. Sporidia uniseriate elliptical with the ends subacute, sometimes navicular, dark, 28 x 8 micr. (sec. Cke)—20—23 x 10—12 in the La. specc. 20—25 x 10—12 in the F. Am. specc.

HYPOXYLON EPIRHODIUM, B. & Rav. Grev. IX, p. 51.—On branches of rose. South Carolina, (Ravenel). "Effused, thin, forming small black patches about two lines across, papillose from the slightly prominent ostiola; asci linear; sporidia uniseriate, elliptic." Sporidia sec. Cke. l. c. 9 x 3½ micr.

HYPOXYLON PUNCTULATUM, B. & Rav. (sub Diatrype) Grev. IV, p. 94. Nummularia punctulata (B. & Rav.) Sacc. in Syll. On bark of dead oak. Common. Originating beneath the cuticle which is soon thrown off, closely adnate, black, smooth and polished, effused and spreading for 5—20 cm. or more, but not projecting above the bark, ostiola punctiform, depressed, appearing like minute punctures made with the point of a pin, margin sterile, thin. Perithecia monostichous, elongated-ovoid rather more than ½ mm. high, covered above by the thin carbonaceous stroma. Asci cylindrical with a slender base, 100 x 7 micr. with filiform paraphyses, (p. sp. 75—80 micr. long,) Sporidia uniseriate, elliptical, yellowish-hyaline, 2-nucleate, 7—8 x 5, ends flattened while lying in the asci. We have not seen them free and cannot say whether they become opake. The asci and sporidia are generally poorly developed but Mr. Everhart finds them as above noted at West Chester.

HYPOXYLON TINCTOR, (Berk.) Hook, Lond. Journ. Bot IV, p. 311. — On dead trunks and limbs of various deciduous trees from Ohio west to Kansas and south to Louisiana, Florida and Texas. Stroma effused, dull black, very hard, exhibiting all the inequalities of the matrix, 1 mm. thick, 5—20 cm. long and 2—5 cm. wide, margin thin and sterile, surface nearly smooth but under the lens distinctly papillose from the slightly prominent ostiola. The subjacent wood is deeply tinged orange red and is rendered very hard. Perithecia monostichous, crowded, elongated (¾ mm,) covered above with the hard brittle shining black stromatic layer. Asci 112 (p. sp. 90—100) x 7—8 micr. with abundant filiform paraphyses. Sporidia uniseriate, pale brown with a single rather large nucleus, oblong-navicular, 15 x 6 micr. with the ends subobtuse. The stroma

originates under the cuticle which is soon thrown off. The general appearance is that of *H. punctulatum* B. & Rav. and it has the same hard brittle stroma as that species.

HYPOXYLON EFFUSUM, Nitschke, Pyr. Germ. p. 48.—On decaying wood of Ulmus Americana, Concordia, Mo., Dec. 1888, Rev. C. H. Demetrio, 56(b). (Also Kansas, Kellerman & Louisiana Langlois, No. 299). Stroma superficial, thin, forming black crust like patches of various size and shape, 3—4 mm. across or often confluently seriate 3—4 cm. or more by $\frac{1}{2}$—1 cm. wide. Perithecia in a single layer, rather large (the central cavity being about $\frac{1}{2}$ mm. diam.), prominent but mostly flattened above with a central papilla much as in *H. annulatum* Schw. but not so distinctly annulate depressed. The specimens were old and the asci dissolved but the sporidia were still tolerably abundant, ovate-oblong and subnavicular, pale-brown 6—8 x 3—$3\frac{1}{2}$, rounded and obtuse at the ends. The perithecia and sporidia were rather larger than in Saccardo's specimen in M. V. 1470 and the stroma thinner but there can hardly be any doubt that our specimens are correctly determined. Nitschke's specimens were gathered in the spring and were then in good condition. The Mo. specc. gathered in the fall would naturally be past their prime assuming that the species matures in the spring of the year.

HYPOXYLON CONCURRENS, B. & C. Grev. IV, p. 93. - Carolina (Ravenel, without habitat), on Acer macrophyllum, Cala. (Harkness.) "Perithecia connate forming a thin black uniform stratum, very minutely granulated, the upper part only exposed; ostiola minute, papillæform: sporidia shortly cymbæform, uninucleate." (10 x 5 micr. Cke.)

HYPOXYLON BEAUMONTII, B. & C. Grev. l. c.—Alabama, Beaumont, Nos. 4617, 4857. No habitat given. "Perithecia rather small, at first slightly brown, then black, smooth, with a distinct papillæform ostiolum; asci linear; sporidia uniseriate, oblong-elliptic, 10 micr. long, uniseptate." Cooke in Grev. XI, p. 134 says of this, "Sporidia elliptic, continuous, fuscous. On branches of, Coniferæ, United States. The sporidia are certainly not septate in the original specimens. It is an effused Hypoxylon."

Hypoxylon crustaceum, Nitschke, Pyren. Germ. p. 49.—(Sec. Cooke not Sphæria crustacea, Sow.) On decorticated wood, British Columbia (Macoun.) Stroma superficial, blackening the wood around it both on the surface and within, more or less effused, tolerably thick, sooty black or sometimes gray-pruinose, formed apparently only by the connate perithecia which are about $\frac{3}{4}$ mm. diam. globose and either densely crowded or loosely aggregated

or even partially free, the rounded apex with distinct papilliform ostiolum free, with only their bases united, rarely perithecia occur only half as large as usual. Asci cylindrical, long pedicellate, with abundant long filiform paraphyses. Sporidia obliquely monostichous, ovate, obtuse at each end, inequilateral or nearly straight, light brown 8—10 x 4—5. The Brit. Columbia specimens agree accurately with the above description except the perithecia are subferruginous-pulverulent and the sporidia oblong-navicular. Asci 150 x 5 micr. (p. sp. 80 x 5 micr.) Clusters of connate perithecia (stromata) 2—5 x 2—3 mm. or interruptedly confluent for 2 cm. long. The specimen in Rab. F. E. 2433 has the perithecia more sparingly connate and black but there is no other difference.

HYPOXYLON SERPENS, (Pers.) Syn. p. 20.—Obs. Myc. 1, p. 18. On decaying wood and bark of various deciduous trees. Stroma effused, thin, applanate, black, variable in form and size, often in narrow, elongated strips 2—3 mm. wide and 3—6 cm. long, but also in small subelliptical or irregular shaped patches 1—2 cm. long by ½—1 cm. wide. Perithecia subglobose, crowded, rather large, rounded and prominent above or rarely slightly depressed around the central papilla then only slightly prominent and the surface of the stroma not so distinctly roughened. Conidial layer pulverulent, cinereous. Conidia subglobose, minute, acrogenous on rather long, branching septate sterigmata. Asci cylindrical, long-pedicellate, 75—100 micr. long (p. sp.) by 6—8 micr. wide with abundant paraphyses. Sporidia obliquely uniseriate, subcylindrical, rounded at the ends, oblong-cylind., subinequilateral or almost curved, seldom straight, becoming dark, 12—16 a 5—6. This is called a common and widely diffused species but as we have some doubt as to whether we properly understand it we have taken the above description from Nitschke's Pyr. Germ. The specimens distributed in N. A. F. under this name agree better with *H. insidens*, Schw. They are certainly not the typical form for the perithecia are small, mostly ½ mm. or less and only slightly prominent and the sporidia are mostly only 8—10 x 3—4; they are however the same as those in Rav. specimens in Fungi Car. IV, 34, which have the stroma of the normal form. The N. A. F. specimens appear to be the same as the *H. colliculosum*, Schw. in Rav. F. Am. 742 both in outward appearance and in the size, shape and color of the sporidia which are oblong-elliptical, subinequilateral, pale brown, 8—10 x 3—4, though Cooke in Grevillea XI. p. 125, says they are 12—13 x 5 micr. We have therefore for the present to leave the matter in doubt.

HYPOXYLON INSIDENS, (Schw.) Syn. Car. No. 122.—(Fuckelia insidens (Schw.) Cke. Grev. XII, p. 52.) On rotten wood or oftener on bark, Carolina and Penna. (Schw.) Stroma innate, effused, nearly round, brown-black, partly sterile, apparently superficial, but the base immersed in the matrix and surrounded by a faint circumscribing line. Perithecia more or less prominent, flexuous, subpapillate, half as large as a mustard seed. Asci cylindrical, sporidia uniseriate, elliptical, pale-brown, 8 x 4 micr. According to Mr. W. C. Stevenson Jr., the specimens in N. A. F. 164, labeled *H. serpens*, agree with the specimens of H. insidens, Schw, in Herb. Schw.

HYPOXYLON COLLICULOSUM, Schw. Syn. Car. No. 82.—On rotten oak wood, Carolina & Penna. (Schw.) On bark of rotten ash, seaboard of S. C. (Rav. F. Am. 742)? Effused thin, colliculose, rugose, black. Perithecia very large, covered with a thin crust which is papillate from the minute ostiola, and with flattened bases not immersed in the wood nor surrounded by any circumscribing line, subdistant but connected by the stromatic crust. Margin various, shining as if oiled, surface very uneven and rimose. Sporidia 12—13 x 5 (Cke.) As already stated, the specimens in Rav. F. Am. do not agree with the description of *H. colliculosum* having both perithecia and sporidia too small and are probably referable to *H. insidens*, Schw.

NEW SPECIES OF KANSAS FUNGI.

BY W. A. KELLERMAN AND W. T. SWINGLE.

SPHÆROTHECA PHYTOPTOPHILA, Kell. & Swingle.—Mycelium very sparse: perithecia globular, dark brown or black, obscurely reticulate, 60—80 micr., mostly 65—75 micr. in diameter; appendages few, more or less evanescent, dark brown, irregular but usually about 6 micr. in diameter and mostly longer than the diameter of the perithecia, often septate. Asci large, hyaline, broadly oval, containing 8 spores, which are hyaline, oval, regular in size, 15 x 24—18 micr. Conidial stage: mycelium more abundant, conidiophores hyaline, erect, total height (including

conidia) 150—220 micr., by 9—13 micr. in diameter; conidia oval hyaline, continuous, granular within, 15 x 21—29, mostly 15 x 27 micr. On *Celtis occidentalis*, Manhattan, Kansas.

The fungus is found associated with *Phytoptus* (an undescribed species) on Hackberry (Celtis). The distortions caused by the insect, or perhaps by both insect and fungus, consist of a multitude of abnormal, more or less abortive branchlets that form a compact knot, $\frac{1}{2}$ to $1\frac{1}{2}$ inches in diameter; a few of the branchlets are prolonged a few inches and themselves bear smaller knots of similar structure. The abortive branchlets have excessively numerous buds all infested by the insect and covered by the fungus. The conidial stage is found associated with the perithecia and sometimes even extending out on the twigs to the under side of the leaves. The perithecia are found in the spring but do not mature their spores till late fall or winter.

SEPTORIA CASSIÆCOLA, Kell. & Swingle.—Perithecia occupying indefinite portions of the languishing cotyledons of Cassia chamæcrista, abundant but not crowded, amphigenous, small, sub-immersed, black, 70—90 micr. in diameter. Sporules filiform, straight or slightly curved, continuous, hyaline, variable, 20—40 x $\frac{1}{2}$—$1\frac{1}{2}$, often 36 x $1\frac{1}{2}$ micr. May 1888, Manhattan, Kansas.

COLLETOTRICHUM CARPOPHILUM, Kell. & Swingle.—Spots depressed, orbicular, often confluent and occupying the greater portion of the lower side of the fruit, $\frac{1}{2}$—1 cm. in diameter, brownish or dusky, centre of spot pallid, usually surrounded by a reddish margin. Acervuli numerous, crowded black, applanate, variable in size. Bristles rather abundant, black, dusky, usually curved more or less, regularly tapering from base to the acutish point, 60—100 micr. in length, 5—6 micr. in width at base. Sporules arcuate, fusoid, acute at both ends, 16—22 x $2\frac{1}{2}$—4. Mostly 18—21 x 3—$3\frac{1}{2}$, nucleate. On living fruit of *Astragalus Caryocarpus*, May and June, 1888, Manhattan, Kansas.

CERCOSPORA CEANOTHI, Kell. & Swingle.—Spots reddish-brown or russet, circular or subcircular, seldom confluent, abundant, equally distinct on both sides of the leaf, 1—5 (mostly 2—4) millimeters. Hyphæ pale brown, continuous or very rarely septate, simple, often nucleate, subnodulose above, hypophyllous sometimes amphigenous, densely fasciculate, 20—36 x 3—$4\frac{1}{2}$, forming minute tufts which are congregated in the centre of the spot. Conidia curved or straight, narrowly cylindrical or

slightly attenuated, ends obtuse, 3—6 septate, mostly 4—5 septate, hyaline 45—90 x 2—4. A Macrosporium sometimes occurs sparingly on the same spots. On *Ceanothus ovatus*, Manhattan, Kansas.

PUCCINIA SCHEDONNARDI, Kell. & Swingle.—II. Sori amphigenous, but mostly hypophyllous, soon erumpent, surrounded by the ruptured epidermis, small (one-fifth to one-half millimetre in diameter) oval or oblong, solitary. Uredospores dull orange, globular, 20—25 micr. diameter, mostly 22 micr., always free from pedicels when mature, covered with short sparse tubercles; pedicels subpersistent, hyaline or slightly tinted, enlarged at tip, base 3—5 micr. in diameter, tip 5—8 micr.

III. Sori amphigenous, small (one-sixth to one-half millimetre in diameter) mostly circular, solitary or rarely confluent, though often abundant; teleutospores clear brown slightly constricted at the middle and often slightly thickened at the apex, subglobose, oval or oval-oblong, 27—35 x 20—26, mostly 28—30 x 21—24, pedicel variable, tapering, tinted, usually once to thrice as long as the spores. On leaves and sheaths of *Schedonnardus Texanus*. II. July and August, III. fall and winter 1888, Manhattan, Kansas.

ÆCIDIUM FUMARIACEARUM, Kell. & Swingle.—Spots none; æcidii growing on stem, petioles and leaves of Corydalis aurea. var. occidentalis, and on petioles and leaves of Dicentra cucullaria; when on leaves occupying definite areas, somewhat crowded, amphigenous but mostly hypophyllous, more scattered on the stems which are more or less distorted. Peridium cylindrical, short ($\frac{1}{4}$—$\frac{1}{2}$ millimetre long), $\frac{1}{4}$—$\frac{1}{3}$ millimetre in diameter; margin usually irregularly torn, moderately reflexed, the peridial cells crumbling away and leaving the margin nearly even and entire, white below, polygonal, mostly longer than broad, above nearly oval, 27—36 x 12—27, mostly 24 - 30 x 15—24. Spores globose or globose-oval, dull orange yellow, cell-wall rather thin, surface covered with numerous minute tubercles, 18—24 x 16—20, mostly 20—24 x 17—19. On Corydalis aurea. var. occidentalis and Dicentra cucullaria April and May, 1888, Manhattan, Kansas, also sent by M. A. Carleton from Wichita (No. 88) and Cloud County (No. 88a.) Differs from *Aecidium Dicentræ, Trelease*, in its smaller, clustered perithecia and larger spores.

CORRECTION.

At the top of pages 87, 89 and 91 of the current No. of "New Fungi" read *Synopsis of Hypoxylon.* for

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JOURNAL OF MYCOLOGY.

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NEW SPECIES OF FUNGI FROM VARIOUS LOCALITIES.

BY J. B. ELLIS AND BENJA. M. EVERHART.

(Continued from page 81.)

PARODIELLA FRUTICOLA, E. & E.—On dead stems of *Clematis ligusticifolia*. Sand Coulee, Montana, Feb. 1888. F. W. Anderson No. 134. Perithecia obovate, astomous (at first), about 1 mm. diam., black, flattened above and finally umbilicate-collapsed and irregularly or sublaciniately ruptured above, seriately erumpent through cracks in the bark, often densely crowded but not confluent. Asci subcylindrical, 100—150 x 15—20, paraphyses cylindrical, often branching below, faintly septate, evanescent. Sporidia 1-seriate or occasionally more or less perfectly biseriate, broad-fusoid-oblong, subinequilateral, 1-septate, straw-yellow, 30—35 x 8—15. The perithecia are often subangular from mutual pressure and are at first filled with a whitish grumous mass but finally become empty. The less crowded forms resemble outwardly *Lophiostoma Montaniense, E. & E.*, from which it is easily distinguished by its astomous perithecia and different sporidia. *Dothidea insculpta, Wallr.* according to specimens and description is different.

SPHÆRELLA OPUNTIÆ, E. & E.—On dead leaves of *Opuntia*. Louisiana, Langlois, 1261. Perithecia gregarious 100—112 micr. diam. in patches 2—10 mm. across. Ostiola erumpent, globose, imperfectly quadrisulcate-cleft. Asci oblong-cylindrical 60 x 8—9 sessile, without paraphyses. Sporidia biseriate, clavate-fusoid, 1—septate slightly bent at the septum, nucleate, yellowish, 20—22 x 3½. Remarkable for its peculiar ostiola.

SPHÆRELLA SPARTINAE, E. & E.—On dead leaves and sheathes of *Spartina cynosurioides*, near Lincoln, Nebraska, Oct. 1888. H. J. Webber, No. 56. Perithecia of coarse cellular structure, subastomous, elliptical, 100—112 x 170—190, buried in the par-

enchyma of the leaf and plainly visible above or on the outside and faintly so inside, quite evenly and thickly scattered. Asci mostly immature in the specc. examined but evidently present. Free sporidia (which we believe to be ascospores) oblong-elliptical, yellowish, constricted and faintly 1-septate in the middle, with about 4 small nuclei, 12—16 x $4\frac{1}{2}$—$5\frac{1}{2}$. This can not be the *Ascochyta Spartinæ*, Trelease, J. M. 1, p. 14, on account of the absence of any spots and the quite different spores. We are also confident that the Nebraska specc. are ascigerous.

SPHÆRELLA ASTERINOIDES, E. & E.—On dead stem of *Dipsacus*, Clyde, N. Y., April '88, O. F. Cook, Jr., No. 539. Perithecia scattered, lenticular, rather broadly pierced above, prominent, but covered with the cuticle, their bases sunk in the matrix, and more or less distinctly fringed with brown branching mycelium. Asci without paraphyses, clavate-cylindrical, with a short narrow base, 80—90 x 18—20. Sporidia crowded, acutely elliptical, 1-septate and constricted, upper cell mostly broader, smoky-hyaline 22—28 x 8—12.

SPHÆRELLA SESBANIÆ, E. & E.—On dead stems of *Sesbania macrocarpa*, Louisiana, June '88, Langlois No. 1403. Densely gregarious, erumpent, perithecia 80—100 micr. diam. pierced above. Asci 35—40 x 7—8, paraphyses none. Sporidia biseriate, oblong-cylindrical, 1-septate, but not constricted nor curved, 10—12 x $3\frac{1}{2}$—4, ends obtuse. Preceded by a Macrosporium with short crooked septate hyphæ and oblong 2—3-septatate, muriform conidia, which are soon opake. In general appearance resembles *S. granulata, E. & E.*, but has much smaller sporidia.

SPHAERELLA APPLANATA E. & E.—On dead stems of *Clematis ligusticifolia*, Sand Coulee, Montana, Feb. '88, Anderson 134 (in part). Scattered, punctiform, flattened, covered by the thin epidermis through which the perithecia are plainly visible. Asci oblong 40—50 x 15. Sporidia biseriate oblong-elliptical or pyriform, 1-septate, hyaline. 18—20 x 6—8. On the same stems was another Sphærella, with sporidia continuous (Læstadia) and perithecia not flattened but the material was insufficient for a satisfactory description.

PEZIZA (SARCOSCYPHA) RHIZOMORPHA, E. & E.—Growing from a Rhizomorpha (R. subterranea Pers.?) on the ground among moss in woods, St. Martins Co., La., Apr. '88, Langlois, No. 1193. Turbinate, with a thick stipelike base, carnose, deeply sulcate outside and covered with a thin coat of tomentum, slaty-black throughout, 4—6 mm. diam., margin strongly incurved, substrigose-tomentose at base. Asci cylindrical, about 200 x 10 micr., with

filiform olivaceous somewhat branched paraphyses, which are scarcely thickened at the tips. Sporidia uniseriate, elliptical about 20 x 10 micr., granular. Allied to *P. melastoma Sow.* & *P. hirtipes Cke.*

PEZIZA (DASYSC.) FRONDICOLA, E. & E.—On the fallen pinnæ of *Osmunda?* Newfield, N. J., June '88. Scattered sessile, cup shaped, black and nearly closed when dry, ¼—⅓ mm. across, disk pallid, clothed outside and margin fringed with short (35 x 3 micr.), brown obtuse septate, hairs which are slightly roughened above. Asci oblong-lanceolate, sessile, subacute at each end, 30—35 x 6 with filiform paraphyses. Sporidia biseriate, clavate-oblong or subfusoid, hyaline, nucleate, 8—12 x 1½.

PEZIZA (DASYSC.) VENTURIOIDES E. & E.—On fallen leaves of *Gaylussacia dumosa*, Newfield, N. J. Gregarious sessile ¼ mm. diam. disk whitish, clothed outside with straight rigid, acute, continuous black bristles 60—80 x 4—5. Asci sessile obtusely pointed above about 30 x 6 micr., with filiform paraphyses. Sporidia biseriate, clavate-fusoid or clavate-oblong, hyaline, continuous, about 10—12 x 1½—2.

PEZIZA (DASYSC.) HYSTRICULA, E. & E.—On the tomentum on the under side of leaves of *Magnolia grandiflora*, St. Martinsville, La., May, '88, Langlois 1317. Minute, white scattered, substipitate, closed when dry, clothed with straight, continuous or faintly septate rough hairs 50—75 x 4—5. Asci oblong-clavate, sessile, 25 x 7—8. Paraphyses not seen. Sporidia biseriate in the upper part of the asci and apparently subfusoid, 3-septate and about 12 x 2 micr. but the specimens examined were not well matured so that there remains some uncertainty as to the shape and size of the sporidia. It has the same habit as *P. tautilla, Phill. & Hark.*

PEZIZA (DASYSC.) CALLOCHAETES, E. & E.—On fallen leaves of *Myrica cerifera*, Newfield, N. J., June '88. Found also in '78. Stipitate, 1 mm. high, cup ½—¾ mm. broad and sparingly clothed on the outside as well as the stem with straight erect, black, bristle-like, obscurely septate hairs 150—200 x 6—7, paler above and slightly swollen at the base. Asci clavate-cylindrical, 60—70 x 7—8 with abundant filiform paraphyses. Sporidia biseriate, oblong-fusoid, hyaline, with the endochrome imperfectly 1—2-parted, 12—14 x 2½—3, subinequilateral.

PEZIZA (MOLLISIA) PRINICOLA, E. & E.—On dead leaves of *Quercus Prinus*, Louisiana, March '88, Langlois, No. 1329. Hypophyllous, subgregarious, carnose-membranaceous brown (liver-brown), about ½ mm. diam. of fibrous structure, attached by a central point.

Asci oblong-cylindrical, sessile about 35 x 6 micr., with filiform paraphyses very slightly thickened above. Sporidia biseriate, clavate-fusoid, continuous, hyaline, 8—11 x 1½. When dry has much the same general appearance as *P. protrusa, B. & C.*

PEZIZA CLAVIGERA, E. & E.—On dead leaves of *Ammophila, longifolia.* Sand Coulee, Montana, July, '88. F. W. Anderson, No, 22. Protruded when moist, contracted and hysteriform when dry, disk cinereous or livid-white, oblong, ¼—½ mm. wide, ½—1 mm. long, margin fimbriate, of fibrous structure, the ends of the fibers roughened. Asci clavate-cylindrical, sessile, narrowed below into a stipe like base. Paraphyses clavate thickened, muricate roughened and 3½—4 micr. thick above, attenuated and septate below, rather longer than the asci. Sporidia biseriate, oblong, hyaline, obtuse, 2—3-nucleate, 12—15 x 4—4½. Allied to such species as *P. protrusa, B. & C.* and *P. Andropogouis, B. & C.*

DERMATEA PURPURASCENS, E. & E.—On dead chestnut limbs, West Chester, Pa., July '88. Erumpent, sessile, substipitate, ½—¾ mm. high, scattered or two or three together, disk convex or plane, subimmarginate, ¾—1 mm. across, dirty white becoming red dish-purple, darker outside, contracted below with a short thick stipe-like base. Asci clavate-cylindrical, 115—120 x 18—22, with stout paraphyses slightly thickened above. Sporidia biseriate, oblong, slightly curved, 25—30 x 8—11, nearly hyaline, ends obtuse, with 4 large nuclei. The fruit is about the same as in *D. olivacea, Ell.*, and the size, shape and general habit is about the same as in that species from which in fact it differs, principally in the color of the disk, and of which it might perhaps be considered a mere variety.

DERMATEA PRUINOSA, E. & E.—On decaying bark. Colorado, Theo. D. A. Cockerell. Gregarious, sessile or nearly so, centrally attached with the thin margin free and spreading, 2—2½ mm. across, dirty-brown and white-pruinose outside, disk livid-white, (light liver color when dry). Asci cylindrical 55 x 5 micr. with filiform paraphyses simple or branching. Sporidia mostly biseriate, allantoid, hyaline, 8—10 x 2—2½. Allied to *P. (Dermatea) fuscosanguinea Rehm.*, but differs in color and in the size and shape of the sporidia.

HELOTIUM RHIZOGENUM, E. & E.—On exposed dead roots of *Andropogon*, Newfield, N. J., Aug. 1885. Stipitate, pale at first, becoming light yellow. Stem cylindrical, rather crooked, 2—4 mm. high, ½—1 mm. thick, pale and granulose-pubescent, at first only slightly enlarged at the top and merely excavated or

hollowed out, soon expanding to a slightly concave disk 1—2 mm. across and of a pale yellow color with a lighter margin. Asci narrow, 65—75 x 5 with filiform paraphyses. Sporidia biseriate, clavate-fusoid, hyaline, 6—8 x $1\frac{1}{4}$—$1\frac{1}{2}$.

STICTIS (CRYPTODSICUS) NIVEO-PURPUREUS, E. & E.—On a decaying white oak post, Newfield, N. J., Aug. 19, '88. Gregarious, $\frac{1}{2}$—1 mm. across, disk plane or a little convex, lilac purple, margin snow-white, pruinose, of a loose friable texture, somewhat toothed, recurved when fresh, closed when dry and then scarcely discernible. Asci 75 x 12 micr. with filiform paraphyses which are crisped and bent at the tips. Sporidia biseriate ovate-oblong, hyaline, 3-septate and finally somewhat constricted at the septa, 12—16 x 5—6. The border in the fresh state resembles the peridium of an *Æcidium*. From the description of that species it might be supposed that this may be a form of *S. atrovirens, Fr.*, but that has a broader disk of a dark green color and lacks the snow white margin.

PHYLLOSTICTA CARYÆ, E. & E.—On living leaves of *Caryæ*, Newfield, N. J., Aug. '88. Spots subrotund, brown, paler in the center, often acute at each end and mostly having a nerve of the leaf running through their center, ($\frac{1}{2}$—1 cm. diam.) with a definite margin. Perithecia scattered, epiphyllous, minute, lenticular, black-brown, rather numerous. Sporules oblong, hyaline about 5—8 x $1\frac{1}{2}$—2. The fungus is also found on old insect galls and on the brown spots caused by these galls on the same leaves. The spots first mentioned do not appear to be caused by galls.

PHYLLOSTICTA LAGERSTRŒMIÆ, E. & E.—On living leaves of *L. Indica*, Pointe a la Hache, La., Nov. '86. Langlois, No. 835. Occupying the dead tips of the leaves. Perithecia amphigenous, punctiform, black, gregarious, erumpent, 100—111 micr. diam. Sporules ovoid, granular, 6–8 x 4—5. This has the habit of *P. terminalis, E. & M.* but is distinguished by its smaller sporules.

PHOMA LAGERSTRŒMIÆ, Speg. var. foliicola, E. & E.—On leaves of *L. Indica*, Pointe a la Hache, La., Nov. '86. Langlois Nos. 833 and 834. Occupying the dead, brown tips of the leaves which are often faintly concentrically zoned. Perithecia amphigenous, sublenticular, about 150 micr. diam. erumpent. Sporules fusoid-oblong, 6—8 x 2, on slender basidia 15—20 micr. long. On account of the distinct basidia we have referred this to Spegazini's species from which it differs in its foliicolous growth. It differs from *Phyllosticta Lagerstrœmiæ, E. & E.* in its sublenticular perithecia and *ovate* sporules.

PHOMA INFOSSA, E. & E.—On dead limbs of Fraxinus, Syracuse, N. Y., Mar. '87, Underwood & Cook. Perithecia scattered, buried in the inner bark, rather large, with an obtusely-conic erumpent ostiolum. Sporules, cylindrical, hyaline, slightly curved, 5—6 x 1¼, ends obtuse. When the cuticle falls away the perithecia go with it, leaving shallow pits ¾—1 mm. across. (Early stage of Valsa)?

PHOMA URENS, E. & E.—On dead poplar branches, Middlesex Falls, Mass., April '88. Prof. L. M. Underwood, No. 612. Perithecia subglobose, densely gregarious, sometimes partially confluent, more or less erumpent, black, surrounding and entriely occupying the limbs and blackening the inner bark. Sporules oblong-elliptical, hyaline, 6—8 x 2½—3.

PHOMA MAMILLARIÆ, E. & E.—On spines of *Mamillaria vivipara*, Sand Coulee, Montana, July '88, F. W. Anderson No. 19. Perithecia subelongated, sporules oblong-cylindrical, 1—3 nucleate, 9—12 x 3½—4, ends obtuse. Can hardly be *P. torrens, Sacc. nor. P. Cacti, Berk.*

PHOMA PARASITICA, E. & E.—Parasitic on *Taphrina cœrulescens.* On living leaves of *Quercus coccinea.* Newfield, N. J., June '88. Perithecia scattered, minute, black, sporules, oblong-elliptical and subinequilateral, 2-nucleate, hyaline 7—9 x 3.

MACROPHOMA XANTHOXYLI, E. & E.—On dead limbs of *Xanthoxylon.* Louisiana, March '88, Langlois No. 1249. Perithecia immersed, seriate, white inside, small, barely cracking the epidermis and scarcely visible. Sporules oblong-fusoid, 22—27 x 6.

AMEROSPORIUM ŒCONOMICUM, Ell. & Tracy.—On "cow pea." Starkville, Miss., Sep. '88. (Tracy No. 87.) Spots orbicular, 2—6 mm. diam., white above with a reddish border, mostly entirely red below. Perithecia epiphyllous, erumpent, conic-hemispheric, broadly perforated above, beset with straight, spreading, greyish-black, septate bristles 100—150 x 4. Sporules oblong-fusoid, nucleate, 18—27 x 4.

SEPTORIA CITRULLI E. & E.—On languishing leaves of watermelon (*Citrullus*) Vineland, N. Jersey, Aug. '88, Col A. W. Pearson. Spots small (1 mm.) round, white, scattered. Perithecia mostly solitary, one in the center of each spot, slightly prominent. Sporules cylindrical or clavate-cylindrical, nucleolate, hyaline, 10—25 x 1½—2 curved. Possibly a foliicolous form of *S. vestita B. & C.*

HENDERSONIA CELTIDIS, E. & E.—On dead twigs of *Celtis occidentalis*, West Chester, Pa., Dec. '87. Perithecia erumpent,

scattered, surrounded by the ruptured epidermis, mostly small, sometimes flattened above. Sporules clavate-oblong or subfusoid oblong, yellowish, 3—7-septate and sometimes constricted at the septa, 15—25 x 4—5, ends subobtuse.

Stagonospora Myricæ, E. & E.—On fallen leaves of *Myrica cerifera*, Newfield, N. J., June '88. Perithecia hypophyllous, scattered, erumpent-superficial, depressed, black, shiny, pierced above, 70—80 micr, diam. Sporules cylindrical, hyaline, straight, ends rounded, 18—22 x 2½—3, on very short basidia. *Sphærella Myricæ E. & E.* and *Gnomonia Myricæ C. & E.* occur on the same leaves.

Septoria gallarum E. & E.—On old *Solidago* galls, Pratt's Falls, N. Y., May '88. Underwood & Cook, No. 568. Perithecia scattered, minute, erumpent, black. Sporules linear-cylindrical, slightly curved, yellowish-hyaline, nucleate, 35—45 x 1½, abundant.

Dinemasporium radiatum, E. & E.—On dead twigs of *Celtis occidentalis*, West Chester, Pa., Dec. 87. Perithecia erumpent, gregarious, ¼—½ mm. diam., cupuliform, the margin fringed with stiff, black, continuous hairs 50—70 x 2½—3, incurved when dry. Basidia simple, cylindrical, brownish 25—50 x 1½ each bearing at its apex an ovate-oblong, hyaline, 2—3 nucleate sporule 6—7 x 2—2½, with a single erect, straight bristle like hair rising from its apex and 4—5 horizontally spreading hairs 9—12 micr., long radiating from its base at the point of juncture with its basidium. The sporules sometimes become faintly uniseptate. The species differs from the usual type of *Dinemasporium* in its uniseptate sporules and radiating hairs which resemble the crest of a *Pestalozzia* but proceed from the base instead of the apex of the sporule.

Leptothyrium castanicolum, E. & E.—On living leaves of *Castanea vesca*, Newfield, N. J., Oct. '88. Scattered over the upper surface of the leaf, both on the green parts and on the white spots formed by *Glœsporium epiphyllum* but its occurrence on the spots is only accidental. Perithecia scutellate, of radiate-fibrous structure, orbicular, slaty-black, 115—150 micr. diam. with the margin even or subcrenate. This must be quite different from *L. Castaneæ*, Spreng. (Sacc. Syll. III, p. 628) which has cylyndrical sporules 5—6 x 0, 7.

Glœosporium podophyllinum, E. & E.—On living leaves of *Podophyllum peltatum*, Concordia, Mo., May '88, Rev. C. H. Demetrio, No. 157. Maculicolous. On light brown (1 cm.) spots with a darker greenish border. Acervuli amphigenous, white, erumpent. Spores variable in size and shape ovate 12—15 x 5—7

or oblong and cylindrical, straight or curved, hyaline 1—3-septate 20—35 x 4—7.

GLŒOSPORIUM PROFUSUM, E. & E.—On living leaves of *Corylus Americana*, Vicksburg, Miss., July '88. Prof. S. M. Tracy. Acervuli scattered hypophyllous large, cirrhi white profuse. Spores cylindric-oblong, granular and 3-septate, 25—30 x 6—7. The leaf is mottled with yellow specks above. *G. rostratum E. & E.* is on definite spots and has longer, narrower spores.

GLOEOSPORIUM VIOLAE, B. & BR.—On *Viola odorata.* Starkville. Miss., June '88. Prof. S. M. Tracy. Spots large (1—2 cm.,) pallid and finally nearly white, border subindefinite. Spores oblong-elliptical, 8—12 x 3—5. Acervuli yellowish.

GLOEOSPORIUM NECANS, E. & E.—On fronds and stems of *Pteris aquilina*, Newfield, N. J., June '88. Amphigenous but mostly epiphyllous on dark reddish brown spots on the pinnules of the frond. Usually several adjacent or opposite pinnules are attacked while those on either side remain green. Soon the affected pinnules become brown and dead and as the fungus spreads the entire frond is killed and dries up as if scorched with fire. The fungus also appears on the stipe on light yellow brown elongated (1—1½ cm.) spots which partly surround the stipe with a broad brownish-black discoloration above and below them. Acervuli (on the stipe) erumpent, small, black, often subelongated, becoming yellow—on the pinnules less distinctly erumpent and yellowish even at first. Sporules oblong-cylindrical, hyaline, obtuse, mostly straight, with 2—3 small nuclei, finally uniseptate, 12—22 x 4—5. This is quite distinct from *G. Pteridis, Hark.* both in its mode of growth and in its fruit. It is very destructive.

PESTALOZZIA PALLIDA, Ell & Martin—On fallen leaves of *Quercus alba*, Newfield, N. J. Sent also from Ohio by Prof. W. A. Kellerman (1883). Amphigenous. Acervuli subdiscoid 70—150 micr. diam. Spores fusoid, 3—4-septate, pale yellowish-hyaline, 12—15 x 3½—4, with a single oblique bristle 7—9 micr. long at the apex and a pedicel about 7 micr. long below. The distance between the extreme septa is 10—12 micr. and the septa themselves stand out from the body of the spore like hoops on a barrel.

PESTALOZZIA TAPHRINICOLA, E. & E.—Parasitic on *Taphrina cœrulèscens*, on *Quercus alba* and *Q. coccinea*, Newfield, N. J. Sent also from Louisiana by Rev. A. B. Langlois, No. 1151. Acervuli amphigenous, minute punctiform, black. Spores fusoid-oblong pale brown, 3—4-septate and mostly constricted at the septa 16—22 x 6—7 with an oblique bristle 6—7 micr. long at the tip and borne on short, slender pedicels

6—8 micr. long. Differs from the preceding species as noted in the description. Distance between the extreme septa 12—15 micr.

POLYSCYTALUM CYLINDROIDES, Sacc. & Ell.—Hyphis e basi paullo incrassata subcylindricis, brevibus, subfuligineis subsimplicibus; catenulis passim ramosis; conidiis cylindricis, utrinque obtuse-rotundatis, spurie 1-septatis, 15—20 x 2½—3. On fallen leaves of *Quercus virens* and *Q. aquatica*, Pointe a la Hache, La., Feb. '87. Rev. A. B. Langlois, 1073. Hyphæ short, cylindrical, thickened below, brownish 25—35 x 2½—3, subnodulose, subsimple. Chains of conidia occasionally branched. Conidia cylindrical, rounded at the ends, spuriously, 1-septate, 15—20 x 2½—3. Differs from *Cylindrium* in its brownish hyphæ—and from *Polyscytalum fecundissimum*, *Riess.* in its nearly simple hyphæ—from *P. sericeum* it differs in its conidia not swollen at the ends and its less effused habit, forming small subpulvinate tufts mostly less than 1 mm. diam.

VERTICILLIUM DICHOTOMUM E. & E.—On dead clover stems (*Trifolium pratense*) Newfield, N. J. Aug. '88. Snow white, fertile hyphæ erect, 70—80 x 3—4, subverticillately or oftener dichotomously branched above, the branches straight septate, pointed and about 20 x 3 micr., bearing at their tips the oblong-clavate, continuous, hyaline 6—12 x 2—3, solitary conidia. The hyphæ form minute, scattered tufts scattered evenly over the matrix and not confluent.

BOTRYTIS RHINOTRICHOIDES, Sacc. & Ell.—Parasitic on old Stemonites, on *Sphagnum*, Newfield, N. J. Hyphis subsimplicibus, eximie verticillato-spiculoso-sporigeris; candidis subglobosis, 4 x 3½—4. Ad genus *Rhinotrichum* valde accedit. Hyphæ subsimple bearing the subglose conidia on short spicules verticillately arranged.

BOTRYTIS TEPHROIDEA, Sacc. & Ell.—Cinerea. Hyphis parce erecto-ramosis, rarius asperulis; conidiis apiculatis, oblongo-ellipticis, 8—9 x 4—5. Ad *B. geniculatam* accedit, sed distincta. On decaying stems of *Ambrosia trifida*. Pointe a la Hache, La. Rev. A. B. Langlois, No. 1048, on rotten wood, No. 1226. Cinereous white. Hyphae with a few erect branches, slightly roughened. Conidia oblong-elliptical, apiculate. Forms thin, continuous patches on the matrix.

BOTRYTIS FASCICULATA, E. & E.—On decaying logs in damp places. Louisiana. Rev. A. B. Langlois, 1231. Hyphae fasciculate, di-trichotomously branched, the branches cylindrical, straight, erect, subhyaline and occasionally slightly denticulate at the tip. The lower part of the fasciculate hyphae coalesce so as to form

distinct plume-like, pale lilac tufts about one mm, high, thickly scattered over the matrix but not effused into a continuous stratum. Conidia elliptical or ovate-elliptical, hyaline, 4—5 x 3.

ZYGODESMUS TRACHYCHÆTES, E, &. E.—On bark of decaying pine limbs lying on the ground, Newfield, N. J. Aug, '88. Pale lilac with a tinge of yellow around the margin. Hyphæ somewhat sparingly branched, 5—6 micr. diam. minutely muricate-roughened, their free ends divided into fascicles of basidia (also roughened) bearing on rather long sporophores the (mostly two) echinate, 6—7 micr. conidia. This differs from *Z. sublilacinus*, Ell. & Holw. in its less branched muricate-roughened hyphæ which are of a rather lighter color and form a thinner stratum and in its more regularly shaped (globose) conidia.

CONIOSPORIUM GRAMINEUM E. & E., (*Gymnosporium gramineum E. & E.* J. M. I, 44.)—On dead culms of *Arundinaria*, Louisiana, Langlois, No. 1111 (partly). Acervuli subsuperfical, gregarious, mostly subelongated 1—2 x ½—1 mm. but also orbicular (½—1 mm.), at first olive-gray (apparently from being partially covered by the thin cuticle), then sooty black. Conidia globose, dark brown 4—5 micr. (mostly 4—4½ micr.) diam. Differs from *C. Arundinis* (*Cda.*) in its smaller conidia and its more superficial mode of growth. *C. Arundinis* (sec, specc. in Kunze's F. Sel.) is covered by the epidermis which is soon longitudinally split but remains surrounding the mass of conidia like a kind of pseudo perithecium. There is nothing of this kind in the present species. The same thing has been found in Florida on Sabal and at Newfield, N. J. on dead culms of *Poa compressa*. In the specimens on Sabal the acervuli are larger (½—1 x ½ cm.)

STACHYOBOTRYS ATROGRISEA, E. & E.—On old Tomato stems. Louisiana. Rev. A. B. Langlois 1333 (pr. p.) Sterile hyphæ creeping, branched, septate, yellowish, or smoky-hyaline, about 3 micr. diam. sending up erect subalternately branched, hyaline fertile hyphæ bearing at their tips compact heads of obovate-oblong basidia 8—10 x 4—5. These basidia are yellowish-hyaline below and darker (almost opake above) and bear at their tips the oblong-elliptical 2-nucleate, smooth, dark brown 7—8 x 3½—4½ conidia. Dr. Zopf (in Mycotheca Marchica No. 70) considers *Stachyobotrys alternans Bon. & S. lobulata Berk.* as only varr. of *S. atra, Cda.* Admitting this, the form here described might be considered as another var. of the same, but its glaucous gray color, and smooth subhyaline hyphæ and smooth, rather smaller conidia appear to warrant specific distinction.

STREPTOTHRIX GLAUCA, E. & E.—On decaying clover stems, Newfield, N. J., July '88. Hyphæ forming pulvinate masses 1 mm. thick continuous or interruptedly confluent for several centimeters, glaucous white then cinereous. Threads much and irregularly branched, about 6 micr. diam. their free ends closely undulate-crisped and bearing the globose, hyaline $4\frac{1}{2}$—5 micr. conidia.

SACCARDO'S SYLLOGE.

Vol. VII, part I of this valuable work appeared some three months ago. It includes the *Phalloideæ* by Ed. Fischer, *Nidulariaceæ*, *Lycoperdaceæ* and *Hymenogastraceæ* by Dr. J. B. De Toni; *Phycomyceteæ* by Doct. A. N. Berlese and J. B. DeToni, and *Myxomycetes* by Doct. A. N. Berlese.

In the compilation of a work of this kiud it would hardly be possible to adopt any arrangement of the various species that would be satisfactory to all, so whatever imperfections this volume may contain it will still be welcome, placing, as it does, within our reach so much valuable matter before inaccessible.

Since the foregoing notice was written, Vol. VI of the Sylloge has come to hand including the *Polyporeæ*, *Hydneæ*, *Thelephoreæ*, *Clavarieae* and *Tremellinae*. There are 928 pages with descriptions of 8551 species. Pages 817--928 are occupied by an INDEX of all the species in Vols. V and VI.

Sylloge VII, part II, is expected this year and Vol. VIII (the last) in the course of 1889. In Vol. VII, part I there are 498 pages with descriptions of 1636 species followed by an INDEX of 30 pages.

The cost of the whole work so far (Vols. I--VII including the vol. of ADDITAMENTA, 484 pages), is 407 fr. about $80, or with U. S. duty added, about $100. Orders may be sent direct to Dr. P. A. Saccardo, Padova, Italy, who will send the vols. by mail.

J. B. E.

NOTICE.

The Herbarium of the late Dr. H. W. Ravenel, containing about 10,000 specimens of PHÆNOGAMS and CRYPTOGAMS is now offered for sale. The collection is a very valuable one and will be a rich acquisition to the individual or Institution fortunate enough to secure it. Address, MRS. H. W. RAVENEL,

Aiken, S. Ca.

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JOURNAL OF MYCOLOGY.

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SYNOPSIS OF THE NORTH AMERICAN SPECIES OF HYPOXYLON AND NUMMULARIA.

BY J. B. ELLIS AND BENJA. M. EVERHART.

(Continued from page 93.)

*Hypoxylon obesum, Fr. Nova Symb. p. 129.—On trunks in Costa Rica. *Oersted.* Hard-carbonaceous, bare, black. Stroma slightly exceeding the short, very thick stipe, of radiate structure and cinereous-black within. Perithecia immersed, peripheric, bullate-prominent. Ostiola papillate, surrounded by an elevated, orbicular margin. Fries who described this species from a single specimen says it is allied to *H. annulatum*, that it is very hard, an inch high, and, at least when mature, quite bare, glabrous and shining black. The sterile base or stipe is ½ an inch high but ¾ of a line ("¾ lin.") thick†, rugose outside and attenuated below, covered above with a horizontal, slightly convex layer of globose, immersed, monostichous, bullate-prominent perithecia, like an immarginate pileus an inch across. The bullate projections of the perithecia are surrounded with a prominent orbicular margin and in the middle of this circular area emerge the papilliform ostiola. The specimen seen by Fries was old and entirely without spores.

Hypoxylon illitum, Schw. Syn. N. Am, 1205.—Not infrequent on standing trunks, especially of *Platanus*, investing them almost completely with its broad, uneven, confluent stromata. Bethlehem, Pa. (Schw.) Widely effused, confluent, the layers often superimposed, so as to imitate a sculptured surface, the material of the stroma appearing as if smeared on the decaying wood. Surface undulate and uneven, at first of a fine olive-green, but finally black. Perithecia rather large, slightly prominent, with ostiola

*Accidentally omitted in its proper place next to *H. marginatum*.

†Apparently a mistake for ¾ inch.

indistinct or acutely conic and thick walls, surrounded with a sparing white stroma. Sporidia 14—16 x 4 (Cke. l. c.)

HYPOXYLON CARIES, Schw. Syn. N. Am. 1222.—On rotten oak, Newfield, N. J. (1874), Also on rotten elm (Ulmus Americana), Concordia, Mo., Dec. 1887. Rev. C. H. Demetrio, No. 56. Stroma effused, black within and without, colliculose and uneven from being composed apparently of many smaller stromata 3—10 mm. in diam. fused together laterally more or less perfectly into a continuous or partially interrupted crust irregular in outline and several centimeters in extent. Perithecia subglobose, $\frac{1}{2}$—$\frac{3}{4}$ mm. diam. their apices slightly prominent with a subacute papilliform ostiolum surrounded by an indistinct lighter colored ring which however is not impressed or sunk into the stroma as in *H. annulatum*. In the specimens examined the asci had disappeared. Sporidia navicular-fusoid, (subhyaline) pale smoky-brown, ends subacute, 10—12 x about 3 micr.

HYPOXYLON INVESTIENS, Schw. Syn, N. Am. 1210.—On rotten wood, Carolina and Penna. (Schw.), Alabama (Beaumont in Rav. Fungi Car. IV, 33), Louisiana (Langlois, No. 991) on *Salix*. Seated on a thick sterile crust that spreads over and blackens the wood following all the inequalities of its surface. On this crust stand densely crowded in a single series the regularly oblong perithecia forming a continuous layer about $\frac{3}{4}$ mm. thick and 4—9 cm. long and wide. The stroma is very scanty covering the perithecia with a thin black stratum mammillose above from the slightly projecting perithecia, with their papilliform deciduous ostiola. In the specimens in Rav. Car. as well as in the La. specc. the surface of the stroma has a distinct purplish tinge. We have not seen the asci but the sporidia are oblong, pale brown 6—10 (mostly 6—8) x 3—4. *H. effusum* Nitschke is closely allied to this.

HYPOXYLON RAVENELII, Rehm. Hedwigia, 1882, p. 137.—(H. confluens, Fr. in Rav, F. Am. 348.) On bark of decaying oak, Darien, Ga. Perithecia single or concrescent 2—8 together, occasionally seriate 6—12 in a series 3—6 mm. long, nearly globose $\frac{3}{4}$—1 mm. diam. with their bases slightly sunk in the wood (our spec. is on wood and not on bark), ostiolum distinct papilliform, black and shining. The perithecia are of a dead grayish-black. Asci very long, cylindrical with abundant well developed paraphyses. Sporidia elliptical, obtuse, pale-brown, with 1—2 large nuclei, uniseriate, 10 x 5 micr.

This is entirely different from H. Ravenelii, Sacc. Syll. I, p. 389 (H. erinaceum, B. & Rav.) which (sec. Cke. Grev. XI. p. 128 is a

Valsa with long necked perithecia and hyaline allantoid sporidia. Whether the above described fungus is the *Sphæria confluens*, Tode can not perhaps now be certainly decided. It agrees tolerably with Tode's fig. but it is not that species as understood by Nitschke and described by him (under *Hypoxylon semiimmersum*) as having sporidia 16—20 x 8—10 and by Fckl, (under the name of H. udum) as having sporidia 28 x 10 micr. We have therefore accepted *H. Ravenelii*, Rehm. as a distinct species.

HYPOXYLON? ATROFUSCUM, B. & C.—(*Fuckelia atrofusca*, B. & C. Grev. XII, p. 51.) On bark of *Rhus glabra*, mountains of Virginia. Pustules erumpent, very small (hardly ½ mm. diam.), elliptical, margined by the ruptured bark. Perithecia unequally distributed in the black, depressed stroma. Asci cylindrical, stipitate. Sporidia elliptical, brown, 13 x 7 micr.

The following species are placed by Cooke (in Grev. XI, 139) under the head of *Doubtful* and as we have no knowledge of them we leave them there:

H. glomus, B. & C.
" exaratum, Schw.
" Sphæriostomum, Schw.
" hydnicolum, Schw.

H. afflatum Schw. is said by the same author to be allied to *Diatrype stigma*, with hyaline sporidia.

*HYPOXYLON Bull. (p. p.)—Stroma carbonaceous, subhemispherical or more or less effused, convex or plane, at first clothed with a conidial growth (mostly some shade of red or yellow), finally bare and black. Perithecia peripheric, mostly in a single layer, more or less immersed in the stroma. Asci cylindrical, with paraphyses. Sporidia mostly uniseriate, subovoid, dark-colored, continuous.

DALDINIA, De Not. et Ces.—Stroma superficial, subglobose, external layer carbonaceous, becoming black, fibrous within and concentrically zoned. Asci cylindrical, 8-spored, pedicellate. Sporidia ovoid or oblong, dark colored, Perithecia immersed in the stroma.

DALDINIA CONCENTRICA, (Bolt.)—*Sphæria concentrica*, Bolt. Fungi Hal. tab. 180.—On dead trunks of various deciduous trees. Common from New England to California and from Canada to Louisiana.

Stroma subspherical or hemispherical, rarely obovoid, subferruginous and softer at first, at length black and carbonaceous,

*The generic characters were accidentally omitted at the beginning of this synopsis and are given here.

2—4 cm. diam. Softer inside, of a radiate-fibrous structure and concentrically zoned. Perithecia monostichous, obovoid-oblong, 1 mm. or a little more in length and about ½ mm. broad, more or less angular from mutual pressure. Ostiola slightly prominent, punctiform, minute. Sporidia obliquely uniseriate, inequilaterally-elliptical, dark brown and finally opake, 12—15 x 7—10. Asci long-pedicellate, 80—100 x 8—10 (p. sp.), with long, filiform paraphyses.

DALDINIA VERNICOSA, (Schw.)—*Sphæria vernicosa*, Schw. Syn. N. Am. 1175. Stroma large (2½—3 x 1—1½ cm.), subturbinate, suddenly contracted below into a thick, stipe-like base which is sometimes concentrically wrinkled, surface of the stroma ferruginous at first from the conidial layer, finally black and shining. Perithecia peripheric, subglobose (sec. Schw.) but in all the specimens we have seen, ovoid-oblong about the same in size and shape as in the preceding species. Saccardo in Sylloge says perithecia polystichous but Schweinitz does not say so nor have we ever found them so though a vertical section through one side of the stroma shows them *apparently* so but this is only apparent as may be seen in a vertical section through the center of the stroma. We find the asci and sporidia about as in the preceding species though in the Sylloge they are said to be longer and narrower. This is a common species around Newfield and we have also received it from New England and New York. This is distinguished from *D. concentrica* by its shining black stroma and the looser texture of the radiate-fibrous inner substance which is cut by 8—12 dark colored, membranaceous horizontal layers or plants. These are very noticeable in a vertical section even in the young plant while it is still covered with the conidial layer and before the terminal subglobose, ascigerous stroma has begun to appear. In the mature state, the fibrous inner substance and the horizontal membranes disappear to a greater or less extent and leave the stroma more or less hollow so that it may be easily crushed with the fingers, but in *D. concentrica* the inner substance remains firm and is also of a darker color.

"DALDINIA CINGULATA, (Lev.) Sacc.—*Sphæria cingulata*, Lev. Ann. Sci. Nat. 3, 1845, p. 47. Obovata, erecta, substipitata, crustaceo-laccata, e fusco-nigra nitida, cingulis peritheciis notata; peritheciis interioribus demum albis, stromate immersis, ostiolis obsoletis.

Hab. ad truncos prope New York (MENAUD).

Stroma 1—2 dec. alt., 1 dec. crass."

The foregoing description of this species is copied from Sacc.

Syll. I, p. 395. We do not get a clear idea of what is meant by "cingulis peritheciis," but suspect that *D. cinglata* (*Lev.*) is the same as *D. vernicosa*. There is nothing in Leveille's description to distinguish this from *Sphœria vernicosa, Schw.*

DALDINIA LOCULATA, (Lev.)—*Sphœria loculata, Lev.* l. c.—Globosa, substipitata, atra, opaca; peritheciis obovatis stromate nigro immersis, ostiolis prominulis, nitidis, subhemisphericis; ascis sporidiisque generis. Hab. in America, ad truncos. Stipes brevis asperulus. This too is copied from the Sylloge and is all we know about it.

USTULINA, Tul. Sel. Carp. II. p. 23.—Stroma superficial, subeffused, rather thick,, determinate, at first carnose-suberose and clothed with the pulverulent, cinereous conidial hymenium, finally rigid, carbonaceous, black and bare and generally more or less hollow. Perithecia immersed, large, with papilliform ostiola. Asci pedicellate, 8-spored, paraphysate. Sporidia ovoid-fusiform, continuous, dark colored.

USTULINA VULGARIS, Tul. l. c. *Sphœria deusta. Hoff.* Veg. Crypt. I. p. 3. *Sphœria verspellis.* Tode. Meckl. II p. 55. On roots of decaying stumps. Found in Europe, America and Australia. Common throughout the eastern U. S. and reported by Dr. Harkness from California. Stroma superficial, subeffused, 3 cm. diam. repand pulvinate, thick (3—4 mm.), surface even, white and subtomentose finally undulate-colliculose and black, substance almost gelatinous at first, then hard and tough almost like *Daedalea betulina*, at length very brittle and hollow, centrally attached. Perithecia large, ovate, densely crowded, monostichous, the punctiform ostiola alone projectiong. Asci narrow—cylindrical, pedicellate, 8-spored, 250 x 8—10 (p. sp.); paraphyses slender, evanescent. Sporidia obliquely uniseriate, fusoid, inequilateral or slightly curved, finally opake, 32—40 x 8—10. Tode (l. c.) gives a very minute and accurate account of this fungus.

NEW SPECIES OF FUNGI FROM VARIOUS LOCALITIES.

BY J. B. ELLIS AND BENJA. M. EVERHART.

(Continued from page 107.)

CHLORIDIUM GLAUCUM, E & E.—On decaying oak limb. Newfield, N. J., July 30, '88. Effused, glaucous-gray, becoming olive-brown. Hyphae subfasciculate, with spreading tips, 75—100 x 2½—3, faintly septate, simply or sparingly branched, crooked

and paler and minutely spiculiferous-dentate above, bearing terminally and laterally the minute (3—3½ x 2), continuous, hyaline, obovate or elliptical, solitary conidia. The minute tufts of hyphae are so thickly scattered as to resemble a short velvety pubescence, much like *Menispora glauconigra C. & E.*

NAPICLADIUM ASTRAGALI, E. & E.—On living leaves of *Astragalus Chamaeleuce*, Gray, Helena, Montana, June 9. '88. F. W. Anderson, No. 60. Leg. Rev. F. D. Kelsey.—Amphigenous forming sooty-black, subconfluent tufts, thickly scattered over the leaves. Hyphae fasciculate on a cellular, subtubercular base, 50—75 x 5—6, smoky brown, septate, simple, nearly straight. Conidia, oblong—cylindrical, 1—4—septate, smoky, 15—40 x 11—13, ends obtuse.

DENDRYPHIUM NUBILOSUM, E. & E.—On living and dead stems and leaves of *Astragalus flexuosus, Dougl.* Sand Coulee, Montana, July, Anderson 117. Hyphae erect, pale fuliginous, subundulate, mostly simple, 80—100 x 6—7, forming a thin velutinous black coat on the matrix. Conidia terminal, not distinctly concatenate, oblong-elliptical to oblong or cylindric-oblong, pale fuliginous, mostly a little curved, 2—5—septate, 25—60 x 10—12. Differs from *D. curtum*, B. & Br. in its paler color (under the micr.) and broader conidia not constricted at the septa.

DENDRYPHIUM ACINORUM, E. &. E.—On dried up grapes still hanging on the vines, Newfield, N. J., Oct., '88. Olive black effused, hyphae erect, simple, septate olivaceous, 150—200 x 4—5, bearing the terminal, obclavate, 5—7—septate, smoky—brown, 40—60 x 6—7 conidia either solitary or 2—3—concatenate at their tips.

DENDRYPHIUM CLADOSPORIOIDES, E. & E.—On dead stems of tomato, Langlois No. 1333. Investing the stems with an olivaceous-black, tomentose coat much resembling in color and general appearance *Helminthosporium, interseminatum, B. & Rav.* Fertile hyphae erect brown, septate, 200—250 x 6—7 more or less branched above bearing the pale-brown, continuous or 1—2—septate, oblong 3—4—catenulate, 12—15 x 5, terminal conidia.

HELMINTHOSPORIUM SUBCUTICULARE, E. & E.—F. W. Anderson, No. 169. On dead twig of *Negundo aceroides*, Sand Coulee, Montana, Apr. '88, Tufted at first then interruptedly confluent and throwing off the cuticle, black. Hyphae simple, erect, hyaline becoming olivaceous, 20—25 x 4—5. Conidia terminal, solitary, olivaceous, oblong—cylindrical, 2-septate, 25—35 x 15—18.

CERCOSPORA MALLOTI, E. & E.—On *Mallotus Japonicus*,

Starkville, Miss., Sept. '88. (Tracy, 83.) Spots dirty-white, subangular, 1—4 mm. thin, deciduous. Hyphæ Amphigenous, tufted, 35 x 3—4, browish, continuous. denticulate, crooked. Conidia slender, 60—70 x 3, faintly septate, hyaline.

CERCOSPORA NUBILOSA, E. & E.—On leaves of *Smilax*, Cleveland, Ohio, July, '88, Tracy No. 68. Spots suborbicular, $\frac{1}{4}$—1 cm. diam. smoky-brown, appearing as if the leaf had been stained with pale-black ink, margin definite but without any border. Hyphæ hypophyllous, in minute punctiform tufts, short (15—25 x 2), brownish, arising from a subtubercular base. Conidia cylindrical 2-6-septate. subhyaline obtuse at each end, 40—90 x $3\frac{1}{2}$—5. Very different from *C. Smilacis*, Thum.

CERCOSPORA TUBERCULANS, E. & E.—On leaves of *Liquidambar styraciflua*, Starkville, Miss., June, '88. Prof. S. M. Tracy. Forming rounded tubercles about 1 mm. diam. appearing first along the midrib and main nerves towards the tip of the leaf on the underside and soon spreading over and killing the entire leaf. These tubercles are of a light color inside but are thickly clothed on the surface with short, 25—35 x 4— 5, continuous, erect olivaceous hyphæ which are entire or slightly toothed above and bear the subolivaceous subcylindrical, 1-5-septate conidia 30—75 x 4—5. This is very different from *Cercospora Liquidambaris*, *C. & E.*, which is on definite spots.

CERCOSPORA PENICILLUS, E. & E.—On leaves of *Myrica cerifera* still hanging on the branches or lately fallen., Newfield, N. J. June, '88. Hyphae hypophyllous in compact and distinct fascicles forming little black brush-like tufts scattered on brick colored spots. The hyphae under the microscope are of a smoky olive-black color, (paler above), multiseptate, 150—200 x 4—6, more or less bent above. Conidia narrow-obclavate, hyaline, nucleate becoming 3-5-septate, 50—75 x $3\frac{1}{2}$—4. This is found associated with *Gnomonia Myricae E. & E.*, of which it is not improbably the conidial stage. On the same leaves also occurs the following species.

CERCOSPORA DISPERSA, E. & E.—Hyphae effused, standing singly or 2—3 together, olive-brown, multiseptate, about 150 x 4—5, nearly straight, subdentate at the apex, forming indefinite olivaceous patches scattered over the lower surface of the leaf. Conidia slender above, smoky hyaline, mostly a little curved. 3-5-septate 80—110 x $3\frac{1}{2}$. Differs from the preceding principally in its effused mode of growth. The color also is not as dark. Has the general appearance of *C. sordida*, Sacc.

CERCOSPORA TEXENSIS, Ell. & Galloway.—On leaves of *Fraxinus viridis*, Brazos Co., Texas, coll. by Prof. LeBrunk, com. B. T. Galloway. Spots amphigenous, small (1—2 mm.), whitish with a purplish border, abundant. Hyphae amphigenous, loosely fasciculate, 5—20 in a tuft, spreading, brown, continuous or faintly 2-3-septate, subequal, nearly straight, shouldered and denticulate above, subtruncate at the apex, 35—50 x 4. Conidia slender about $2\frac{1}{2}$ micr. thick at the base, narrowed and almost filiform above, faintly septate, 70—110 micr. long. On some of the leaves were larger ($\frac{1}{2}$—1 cm.), irregular, brown spots also bearing the fungus. These larger spots were marginal or near the margin. This differs from *C. fraxinites*, E. & E. in its longer, coarser and more spreading and fewer hyphae and its much longer conidia and also in the different character of the spots.

CERCOSPORA MALI, E. & E.—On living leaves of *Pyrus malus*. St. Martinsville, La., July, 1888, Rev. A. B. Langlois, 1373. Epiphyllous on gray round spots 2—3 mm. across with a dull red border. Hyphae short, brown, continuous, shouldered and toothed above, 15—20 x $2\frac{1}{2}$—3 densely tufted, appearing like minute black specks on the gray surface of the spot. Conidia slender nearly straight, yellowish-hyaline, 4-5-septate 60—70 x 2—$2\frac{1}{2}$. Quite distinct from *C. Pyri Farlow* which is hypophyllous and much coarser.

STILBUM SEBACEUM, E. & E.—Parasitic on old *Stereum Spadiceum*, Newfield, N. J., June '88. White, gregarious, short ($\frac{1}{2}$mm.); Stem 40—50 thick, of loose fibrous texture, white tomentose pubescent. Head obovate or subglobose, 150—200 diam. white, then flesh-colored, composed of much branched sporophores bearing at their tips the subglobose or slightly elliptical conidia, 4—5 micr. diam. hyaline, mostly with a single nucleus. These conidia form a conglutinated mass mostly flattened above and by its weight often bending down the stem so as to appear sessile, or often 2 or 3 heads of conidia are confluent forming a flesh colored mass 1 mm. diam. and much resembling the conglutinated masses of spores discharged by some species of *Glœosporium*. There was also a *Penicillium* (P, Hypomycetis Sacc.) on most of the specimens.

STILBUM COPROGENUM, E. & E.—On dung of some animal (Raccoon)? in swampy woods. Newfield, N. J., Sept. 1887. Stem 5—6 mm. high and $\frac{1}{4}$—$\frac{1}{3}$ mm. thick, quite tough, reddish-brown below, lighter above, subequal. Head yellowish white, clavate, $1\frac{1}{2}$ mm. long, dusted over with the short elliptical or

subglobose, subhyaline conidia which are 3—3½ in the longer diameter.

ISARIA STRAMINIPES, E. & E.—On decaying twigs lying on damp shady ground. St. Martinsville, La., May, '88. Rev. A. B. Langlois, No· 1230. Stromata simple, clavate, tomentose-farinose head obtuse and about 1 mm. thick. Conidia abundant, obovate, hyaline 2—2½ x 1. There is at first a small patch of bright yellow subiculum at the base of the stem but the yellow color of this subiculum as well as of the stem itself changes to a tobacco brown. This possibly is not distinct from *I. clavata*, Desm, which is said to be of a "reddish-yellow color inclining to umber brown" with "sporidia" of the same color. Saccardo describes and figures the Italian specimens as *white*. The La. specimens have the stem bright yellow (at first) and only the club-shaped head white.

DENDRODOCHIUM DENSIPES. Sacc. & Ell.—On bark of dead cedar, Faulkland, Del. A. Commons 639. Sporodochia seriate-erumpent, globose. minute then applanate-pulvinate, suborbicular with partially free margin and 1 mm. or more diam. pale-orange, subconfluent. Sporophores fasciculately branched, branches erect, 20—35 x 1½. Conidia terminal, ovate-elliptical, hyaline, about 5 x 2½. Longitudinally seriate in cracks of the bark.

VAR. PROLIFICUM, E. & E.—On bark of *Salix*, Louisiana, Langlois 1454, has the conidia a little smaller, (5—6 x 2½) with their ends subacute and basidia evanescent.

DENDRODOCHIUM SIMILE, E. & E.—On bark of dead Carya olivaeformis. Louisiana Langlois No. 1398, Sporodochia seriate-erumpent, pale orange, whitish pulverulent, ½—1 mm. diam. or by confluence 2—3 mm. Sporophores erect, branched, the branches closely appressed. Conidia oblong, 2—2½ x ½—¾. Has the same structure as D. densipes, S. & E. from which it differs in its smaller conidia.

SEPTORIA ATRIPLICIS. (*Desm.*) AND SEPTORIA CHENOPODII, *West.*—In examining some leaves of *Blitum capitatum*, sent by Mr. Holway, collected by Mr. J. M. Holzinger at Winona, Minn. and infested by a fungus which is either the same as or closely allied to *Phleospora Chenopodii*, E. & K. (J. M. iv, p. 26), a careful examination was made of all the specimens of *Septoria Atriplicis* (*Desm.*) & S. *Chenopodii*, *West*, in the different Exsiccati at my command to ascertain more definitely, if possible, whether the fungus collected by Mr. Holzinger, and the *Phleospora Chenopodii*, E. & K. were really distinct from the species of Westendorp and Desmazieres. Of *Septoria Atriplicis*, (Desm), Fuckel in his Symb. Myc. p, 390, says the sporules are "oblong, obtuse at each

end, uniseptate and hyaline." The specimens of this species in Saccardo's Mycotheca Veneta 1227 on Chenopodium murale have the sporules 15—20 x 3—4, continuous or 1-septate. Those in Myc. Mar. 387, on *Atriplex* (sp.), have sporules 15—22 x 4 —5, 1—3-septate, the larger ones slightly constricted at the septa. Those in Eriksson's Fungi Scan. 188. on *Atriplex hastata* have sporules 15—22 x $3\frac{1}{2}$—$4\frac{1}{2}$ and mostly 1-septate. Specimens of *Septoria Chenopodii, West*, from de Thumen, on Chenopodium *murale* have the sporules continuous, 20—25 x 3—$3\frac{1}{2}$. In Mycotheca Marchica 1570 (on *C. rubrum*), the sporules are partly 1-septate, and 15—25 x 3—$3\frac{1}{2}$ and partly larger 15— 22 x 3—4, 1—3-septate. All the specimens above mentioned have the same general appearance and can not be distinguished by their external character; nor do their sporules differ sufficiently to warrant specific distinction, being mostly continuous or uniseptate in perithecia on the smaller and paler spots, on leaves still green, and larger and 1—3-septate on spots apparently older, on leaves nearly dead. In the original specimens of *Phleospora Chenopodii* E. & K. on leaves of *Chenopodium* from Kansas, the spots are concentrically wrinkled and have a definite, slightly raised border, in which respect as well as in the much thicker (7—11 micr.) sporules strongly constricted at the septa they differ from the specimens of *Septoria Atriplicis* and *S. Chenopodii*, though considering the variability in the sporules of these two so called species, there may be good reason to doubt whether *Ph. Chenopodii*, is more than a var. or a more perfectly developed form of *S. Atriplicis*, (Desm.). In the 40th Rep. N. Y. State Mus, Nat. Hist. is a *Stagonospora Chenopodii*, Pk. which was published at about the same time as the last mentioned species but if the genus *Phleospora* is to be retained it will evidently include Peck's species which, unless it can claim priority (which is doubtful), will become a synonym of *Phleospora Chenopodii*, E. & K. The Minnesota specimens differ from the Kansas specimens of *Phl. Chenopodii* only in the less definitely margined spots without any concentric wrinkles. This variability would seem to strengthen the supposition that all the forms here enumerated may be referable to *Septoria* (*Phyllosticta*) *Atriplicis, Desm.* It should also have been noted that the specimens in N. A. F. 1168, labelled "*Phyllosticta Chenopodii, West*," and having sporules 12—16 x 3—4, some of them faintly uniseptate are evidently only an imperfectly developed state of *Septoria Atriplicis, Desm.* J. B. E.

NEW LITERATURE.

Lichenes Paraguenses a cl. Balansa lecti et a Prof. Dr. Muller elaborati. Revue Mycologique, Oct. '88.

La Melanose, par MM. P. Viala et L. Ravaz l. c.

Le remede du Black-Rot decouvert par M. Ed. Prillieux. l. c.

L' organisation du White Rot (Rot Blanc), par MM. G. Foex et L. Ravaz. l. c.

Le Rot-Blanc dans la Haute. Garonne et le Tarn en '88 C. R. l.c.

Champignons parasites nouveaux des Plantes cultvees, par M. Fridiana Cavara. l. c.

Les nonveaux Champignons de la vigne, par M. F. Carvara. l.c.

Forme abnormal du *Polyporus obducens*, A. Le Breton, l. c.

Cooke, M. C. Illustrations of British Fungi parts LXIV. and LXV.

Cooke. M. C. Mutinus Bambusinus in Britain with plate Grevillea Sept. '88.

British Hyphomycetes (concluded). l. c.

Cook, M. C. Berkeley & Curtis Types. l. c.

Massee. G. British Pyrenomycetes (continued), l. c.

Cooke, M. C. New British Fungi. l. c.

Masse. G. A Monograph of the genus Lycoperdon (Tourn.) Fr.

Journal of the Royal Microscopical Society, June, '87. (plates 12 and 13.

CORRECTION.

On p. 86 (vol. iv.) 7th line from the bottom for "10 x 15 micr." read 8—11 x 4—5 micr.

NOTICE.

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JOURNAL OF MYCOLOGY.

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NEW SPECIES OF FUNGI FROM VARIOUS LOCALITIES.

BY J. B. ELLIS AND BENJA. M. EVERHART.

(New Series.)

ASTERINA LEPIDIGENOIDES, E. & E.—On living leaves of *Capparis Jamaicensis, Jacq.* Key West, Florida, May 1880. Coll. A. H. Curtis, com. A. Commons. Mycelium obsolete. Porithecia hypophyllous, scattered, attached to the scales on the leaf, small (100—120 micr.), of rather fine (not radiate) cellular structure, pierced above, scutellate. Asci oblong, sessile, 60 x 12 micr., mostly broader below. Sporidia biseriate, fusoid, 3-septate hyaline, 12—14 x 2—2½.

Closely allied to A. lepidigena E. & M. but differs in its smaller perithecia, longer asci and 3-septate sporidia.

ASTERINA PAUPERCULA, E. & E.—On living leaves of *Jacquinia armillaris, L.* Southern border of the Everglades, Florida, on coral soil. Coll. A. H. Curtis, com. A. Commons, No. 876. Epiphyllons. Perithecia scutellate, brownish-black, 90—120 micr. diam. seated on and surrounded by a thin network of brown, branching mycelium. Asci subelliptical, 22—25 x 12—15, contracted below into a short stipe-like base, 8-spored. Sporidia crowded, fusoid, hyaline, 1-septate, 12—15 x 2.

DIMEROSPORIUM ERYSIPHEOIDES, E. & E.—On dead leaves of *Cynodon Dactylon, Pers.* St. Martinsville, La. Oct. 1888. Langlois 1492. Amphigenous. Perithecia scattered, astomous, globose. 100—115 micr. diam., seated on a rather scanty mycelium of slender, brown, branching hyphæ and surrounded below with 15—20 short spreading appendages, 30—40 x 3, mostly 1-3-septate, brown and imperfectly bilobate at their extremities. Asci oblong, subsessile, 35—40 x 12—14, (paraphyses)? Sporidia biseriate acutely-elliptical, 1-septate and constricted, each cell with a large nucleus, 15—18 x 6—7. With the ascigerous perithecia are many smaller ones (spermogonia)? without appendages and containing a few globose, brownish sporules 4—5 micr. diam.

There were also scattered on the mycelium some large (20 x 10) elliptical, brown, 1-septate spores but we could not ascertain whether they were produced from the threads of the mycelium or not.

DIALONECTRIA (NECTRIELLA) CONSORS, E. & E.—On dead stems of *Polygonum acre*. St. Martinsville, La., Sept. 1888. Langlois 1485.

Gregarious. Perithecia ovoid, $\frac{1}{8}$ mm. diam., light-scarlet, clothed except the obtusely conic smooth ostiolum with short spreading pale bristle-like hairs. Asci sublanceolate, 60—70 x 6. Sporidia obliquely uniseriate or biseriate, oblong-fusoid, hyaline, 2-3-nucleate, 7—9 x $2\frac{1}{2}$. Accompanied by a *Volutella* resembling *V. ciliata* but with minute oblong-cylindrical, 3—4 x 1 conidia.

DIALONECTRIA GIBBERELLOIDES, E. & E.—On dead stalks of *Zea Mays*, Pointe a la Hache, La., Oct. 1886. Langlois No. 1457.

Perithecia scattered, nearly black, 150—200 micr., contracted below into a short stipe like base, at length collapsing. Asci oblong or clavate-oblong, sessile, about 35 x 5, without paraphyses. Sporidia subbiseriate, fusoid, 1-septate, straight or a little curved at one end, yellowish-hyaline, 12—15 x $2\frac{1}{2}$—3. The perithecia are of fine cellular structure without any trace of the blue color seen in Gibberella.

ANTHOSTOMELLA MAGNOLIÆ E. & E.—On fallen leaves of *Magnolia*. St. Martinsville, La., July '88. Langlois 1480. Perithecia gregarious, hypophyllous, immersed $\frac{1}{3}$—$\frac{1}{2}$ mm. diam., slightly prominent and covered by the blackened cuticle, which is pierced by the papilliform ostiolum. Asci cylindrical, 75—85 x 5—6, without paraphyses. Sporidia uniseriate, oblong-elliptical, pale-brown, 2-3-nucleate, 7—8 x 3—4, with a faint, obtuse hyaline apiculus about $1\frac{1}{2}$ micr. long at the lower end and a rather shorter one at the upper end.

VALSA (EUTYPELLA) MICROCARPA, E. & E.—On decaying limbs of (peach)? St. Martinsville, La., July '88. Langlois 1481.

Perithecia in clusters of 4—12 buried in the inner bark which is uniformly stained of a pale slate color, their bases scarcely penetrating the wood, globose, about $\frac{3}{4}$ mm. diam. with thick coriaceous walls, black and shining within. The surface of the bark is raised into distinct pustules over the perithecia and is more or less cracked and pierced by the cylindrical, rough, black, 1—2 mm. long ostiola which are distinctly quadrisulcate-cleft at their tips and issue in a little fascicle with their bases more or less connate but diverging above. Asci minute, 12—14 x 4—5

(p. sp.) with a slender base. Sporidia crowded in the asci, yellowish in the mass, allantoid, strongly curved, with a nucleus in each end, 3—4 x 1 (mostly not over $3\frac{1}{2}$ micr. long.)

AMPHISPHÆRIA DEFORMIS, Ell. & Lang.—On an old cedar post, Pointe a la Hache, La., March '86. Langlois No. 1459.

Perithecia gregarious, erumpent, subglobose, or a little compressed, $\frac{1}{3}$—$\frac{1}{2}$ mm. diam. black and roughish, ostiolum irregular, lacerate-depressed. Asci clavate-cylindrical, about 50 x 7, rather evanescent with obscure paraphyses. Sporidia uniseriate, oblong or clavate-oblong, brown, 1-septate and constricted, with each cell nucleate.

Melanopsamma cupressina E. & E.—(J. M. II, p. 103) much resembles this but the sporidia are hyaline and incline more to ovate.

PHOMA GLUMARUM, Ell. & Tracy,—On living glumes of *Oryza sativa*. Starkville, Miss., Oct. '88. Tracy No. 122. Perithecia erumpent-superficial, black, minute (90—120 micr.), pierced above. Sporules elliptical 3—4 x 2—$2\frac{1}{2}$; smoky-hyaline.

PHYLLOSTICTA MAXIMA E. & E.—On leaves of *Rhododendron maximum*, Bedford, Mass., July '83. Coll. Rev. Thos. Morong, com. A. Commons.

Spots large, reddish-brown with a darker margin, mostly terminal or lateral, (3—5 cm.) Perithecia scattered, epiphyllous minute ($\frac{1}{3}$ mm.), their subacute apices slightly prominent. Sporules globose-elliptical, hyaline, granular, 10—12 x 6—8 on rather slender pedicels about equal in length to the diameter of the sporule. The fruit is much like that of *P. sphæropsoidea, E. & E.* and the habit that of *P. terminalis, E. & M.*

DIPLODINA KŒRBERLINIAE, E. & E.—On *Kœrberlinia spinosa*, Arizona, June '81. Coll. C. G. Pringle, com. A. Commons. Perithecia gregarious, subcuticular, $\frac{1}{2}$ mm. diam. rupturing the epidermis but not erumpent. Sporules elliptical, hyaline 14—16 x 7—8, the endochrome imperfectly divided across the middle.

VERMICULARIA HIBISCINA, E. & E.—On dead *Hibiscus Manihot*, Pointe a la Hache, La., Jan. '86. Langlois No. 1458. Perithecia erumpent, subseriate, $\frac{1}{2}$ mm. diam. densely clothed with black bristles 80—100 x 4. Conidia falcate-fusoid, 15—20 x 3—4.

PESTALOZZIA MAURA, E. & E.—On leaves of PSYCHOTRIA RUFESCENS, H. B. K. Halifax River, Fla., (A. H. Curtis No. 1121). A. Commons No. 881. Perithecia amphigenous, subprominent, black, minute, on round reddish-brown spots 2-3-mm. diam.

Conidia obovate, acute below. 3-septate, quite dark, almost opake, 12—15 x 6—8, with a crest of three horizontally spreading bristles 15—20 micr. long arising without any very distinct hyaline apical cell directly from the obtuse apex, basal hyaline cell small, acute terminating in a hyaline pedicel shorter than the conidia.

SPORIDESMIUM FUNEREUM, Ell. & Lang.—On rotten pieces of an old coffin taken from a brick tomb. Pointe a la Hache, Feb. '86. Langlois No. 1456. Effused, pulverulent, snuff-brown. Conidia globose, 10—15 micr. muricate-roughened, mostly 4-parted by two vertical septa at right angles, and furnished with a short (often obconic) hyaline pedicel below. Allied to *S. Moriforme, Pk. & S. Rauii, E. & H.*

HAPLOGRAPHIUM GRISEUM, Ell. & Lang.—On decaying corn stalks. Pointe a la Hache, La. July '86. Langlois 1464. Effused, dirty gray. Fertile hyphæ sub-fasciculate or solitary, pale brown, faintly septate, 150—200 x 4, simple or sometimes forked about midway, subdichotomously branched above, the branches erect and forming a compact, brush-like head about 30 micr. long and half that wide. Conidia terminal, oblong, hyaline, 4—5 x $1\frac{1}{2}$. The branches are not verticillate.

BOTRYTIS FUNICOLA, E. & E.—On an old rope lying on the ground, Newfield, N. J., Oct. Hyphae subolivaceous, simple or sparingly branched below, continuous, 20--30 x 2—$2\frac{1}{2}$, forming a thin dark olive colored stratum. Conidia terminal (solitary)? olivaceous, ovate-elliptical, uninucleate, 3—4 x 2—$2\frac{1}{2}$. Comes near *B. atroviridis, C. & E.*

FUSICLADIUM CARYIGENUM, Ell & Lang.—On living leaves of *Carya olivæformis* St. Martinsville, Sept. '88. Langlois No. 1499. Hypophyllous and maculicolous. Spots, numerous, small, (1—2 mm.) but also larger (3—5 mm.) and then of irregular shape, subangular, center grayish-white, margin purple-shaded. Hyphae simple or somewhat branched below, olive-black, septate, 60—75 x 4—5, subequal. Conidia terminal, almond-shaped varying to ovate and clavate-ovate, smoky-olivaceous. 10—15 x 6—7.

This can hardly be separated from *F. effusum Winter* by its microscopical characters but its epiphyllous, maculicolous growth and darker colored (almost black) hyphae will distinguish it.

F. effusum is also found on *Carya olivæformis* (Langlois. 1369).

NEW LITERATURE.

Bennett, J. L., Plants of Rhode Island—an enumeration of the plants growing without cultivation in the State of Rhode Island—includes a list of about 600 Fungi. (8 vo., 128 pp. Proc. Providence Franklin Society, 1888.

Lagerheim, Dr. G, Eine neue *Entorrhiza.* Separat abdruck aus Hedwigia 1888, Heft 9 and 10.

" Mykologiska Bidrag. VI. Ueber eine neue auf Juncus-Arten wachsende Species der Gattung Urocystis.

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" Funghi delle Ardenne contenuti nelle Cryptogamæ Arduennæ della Signora M. A. Libert. (Estratto dalla Malpighia, Anno I, Fasc. V.)

FLORIDA LICHENS.

By a letter from our friend Col. W. W. Calkins, who spends several months of each winter in Florida, we are pleased to learn that since the publication of "The Lichen-Flora of Florida" by Eckfeldt & Calkins in the JOURNAL OF MYCOLOGY, he has added very nearly *forty* species to the *three hundred and thirty* there enumerated, while still a large number remain to be positively identified before being added. Many are new species. In all over thirty species of Florida Fungi and Lichens new to science can be placed to his credit. To supply the demand which has arisen Col. C. will furnish named sets of 100 or more species at 5 cents per species.

Address W. W. Calkins, 147 California Ave., Chicago, Ill.—— after Dec. 25th Jacksonville, Fla.

NOTICE:

Arrangements have been made to have THE JOURNAL OF MYCOLOGY published as a Quarterly during the coming year (1889) at Washington, edited under the direction of the Commissioner of Agriculture, by B. T. Galloway, Chief of the Section of Vegetable Pathology, assisted by J. B. Ellis and Benja. M. Everhart. The Journal will be distributed free to all the present subscribers and others interested in mycological studies.

Copies of Vols. I, II, III and IV will be sent to any address, postpaid, on receipt of $5.20; or the vols. may be had separately —Vol. I, $2.00, and the other three vols. $1.25 each.

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INDEX TO ARTICLES.

INDEX TO DESCRIBED SPECIES.

*In this Index E. & E., E. & K., &c., will be written EE., EK., &c., as the printer lacks the requisite number of the character &.

INDEX OF HOST PLANTS.

CORRECTIONS.

On page 46 (vol. IV,) *Pestalozzia pallida, E. & E.* should be *Pestalozzia pallida, E. & M.* It was repeated on page 104 by mistake.

In Cylindrosporium Apocyni, E. & E., J. M. III, p. 22, the spores are only 3—3½ micr. thick instead of "4—5 micr."

In JOURN. MYCOL. III, p. 21, change *Gloeosporium punctiforme* E. & E. to *G. Everhartii*, Ell., as there is already a G. punctiforme S. & E. on *Phormium tenax.*